SANTA CLARA

UNDERGRADUATE COURSES AND DEGREES

1975-76 BULLETIN

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University of Santa Clara Bulletin
Undergraduate
Courses & Degrees
1975-1976

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SANTA CLARA, CALIFORNIA 95053

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General Information

UNIVERSITY ACCREDITATIONS AND MEMBERSHIPS

One Hundred and Twenty-fifth Year
1975-1976

Accredited by the Western Association of Schools and Colleges
Accredited by Engineering Council for Professional Development
Accredited by the American Chemical Society
Accredited by the State Bar of California
Accredited by the American Association of Collegiate Schools of Business (Undergraduate and Graduate Programs)
Accredited by California State Board of Education
Approved by the American Bar Association
Approved by the American Medical Association
Member of American Council on Education
Member Council of Graduate Schools in the United States
Member of Association of American Law Schools
Member of Association of Jesuit Colleges and Universities
Member of Conference of Jesuit Law Schools
Member Conference of Western Law Schools
Member of College Entrance Examination Board
Member of Association of American Colleges
Member of Association of Independent California Colleges and Universities
Member of Council for Advancement and Support of Education
Institutional Member of the American Mathematical Society
Academic Member of the Mathematical Association of America

THE UNIVERSITY OF SANTA CLARA
Santa Clara, California 95053

UNDERGRADUATE CALENDAR 1975-76*

Fall Quarter

September 1	Monday	Labor Day, academic and administrative holiday.
September 23	Tuesday	Freshman registration, p.m.
September 24	Wednesday	General registration (sophomores, juniors, and seniors).
September 25	Thursday	Instruction begins.
October 1	Wednesday	Last day for late registration and the adding of courses.
October 15	Wednesday	Last day for seniors to file for candidacy for graduation 1976.
November 4	Tuesday	Undergraduate deficiency grades announced.
November 26	Wednesday	Last day to withdraw from courses.
November 27-28	Thursday-Friday	Thanksgiving recess, academic and administrative holidays.
December 8-12	Monday-Friday	Fall quarter examinations.
December 16	Tuesday	Fall quarter grades due.
December 25-26	Thursday-Friday	Christmas administrative holidays.
January 1-2	Thursday-Friday	New Year's administrative holidays.

Winter Quarter

January 5	Monday	Undergraduate registration.
January 6	Tuesday	Instruction begins.
January 12	Monday	Last day for late registration and adding of courses.
January 15	Thursday	Martin Luther King's birthday, academic and administrative holiday.
February 12	Thursday	Deficiency grades announced.
February 16	Monday	Washington's birthday, academic and administrative holiday.
March 3	Tuesday	Last day to withdraw from courses.
March 17-20	Wednesday-Saturday	Winter quarter examinations.
March 22-26	Monday-Friday	Spring recess.
March 23	Tuesday	Winter quarter grades due.

*All dates are inclusive.

Spring Quarter

March 29	Monday	Registration.
March 30	Tuesday	Instruction begins.
April 6	Tuesday	Last day for late registration and adding of courses.
April 16	Friday	Good Friday, academic and administrative holiday.
April 23	Friday	Last day to file pre-registration forms.
April 30	Friday	Deficiency grades announced.
May 28	Friday	Last day to withdraw from courses.
May 28	Friday	Senior grades due at noon.
June 9-12	Wednesday-Saturday	Spring quarter examinations.
June 13	Sunday	125th Commencement.
June 15	Tuesday	Spring quarter grades due 9 a.m.

Summer Session

June 21	Monday	Summer Session begins.

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HISTORICAL PERSPECTIVE

On January 12, 1777, six months after the signing of the Declaration of Independence, a cross was planted at a site in the present city of Santa Clara by a Franciscan Padre, Tomas de la Pena, to mark the founding of the eighth of California's original twenty-one missions, Santa Clara de Assis.

Three quarters of a century elapsed before the University of Santa Clara, or Santa Clara College as it was first known, opened its doors as an institution of higher learning. In the intervening years, however, the Mission served as a spiritual center and school for the Indians. Besides religious instruction, the men were taught stockraising, farming and the building trades; the girls, weaving and sewing; the boys, reading, music and religious drama. From 1777 until Mexican government secularization, February 27, 1837, some nine thousand persons were baptized at the Mission. More than eight thousand of these were young or adult Indians.

During the early period, the less solidly built Mission buildings of the first and second sites were destroyed by the flooding waters of the Rio Guadalupe. The third Mission church, of adobe, was completed in 1784 but was seriously damaged by earthquakes in 1812 and 1818. A fourth church, likewise of adobe, was used temporarily from 1819 to 1825. The larger fifth Mission with its quadrangle patio, also of adobe, was completed and dedicated August 12, 1825. The University's Adobe Lodge Faculty Club formed the west wing of the quadrangle.

The first site of Mission Santa Clara is marked by a California State historical landmark, located near the intersection of Kifer Road and De la Cruz Boulevard. Crosses mark the second site at De la Cruz Boulevard and Martin Street, and the third site at Campbell and Franklin Streets. the fourth Mission Church stood in the area between Kenna and Delia Walsh Administration building on the University campus to today.

During the first three decades of the nineteenth century, the old Mission enjoyed its most fruitful years. In 1827, well over fourteen hundred Indians lived within sound of the Mission's bells. In that year, some 15,500 sheep, 14,500 head of cattle and abundant crops of wheat, corn and beans were produced and cared for by the Indians under the Padres' guidance.

A combination of factors terminated the decades of prosperity at Santa Clara and the other California Missions. The Mexican War of Independence brought turmoil from 1810 to 1821 with resultant decrease of Franciscan personnel and donations in aid from benefactors. The new Mexican government took possession of the old Jesuit Pious Fund of the Californias that had been the main source of support for the Mission. Most of the Indian's lands, cattle and sheep became the object of spoliation by unscrupulous civil administrators.

In 1827 and again in 1829 governmental decrees ordered exile for all Spaniards who refused allegiance to the new regime. Since most of the Mission Padres were from Spain, many chose banishment. Some, however, remained until, in 1833, Mexican Franciscan replacements arrived from the missionary college of Zacatecas. Among them was Fray Francisco Garcia Diego y Moreno who was to become the first bishop of the Californias. Although thoroughly committed to the welfare of the Indians, the Padres' resistance to governmental encroachment upon the Indians' rights and property had little effect. Finally came full secularization of Mission properties, imposed at Mission Santa Clara in early 1837. This ended the effectiveness of the Franciscan missionary endeavor in Alta California. Within a few years, the Mission buildings and the Indian lands, cattle and sheep fell to the possession of the civil officials and their friends.

New People, New Ways

In the early 1840's a new people and a new way of life came to Alta California. Most of the immigrants were Anglo-Americans, attracted by the rich lands of the Santa Clara Valley. In 1848, the Treaty of Guadalupe Hidalgo ceded California to the United States. Statehood was granted in 1850.

It was in this setting that Santa Clara opened its classroom doors in May of 1851. The new Dominican bishop of San Francisco, Joseph Sadoc Alemany, had asked the Jesuit Father John Nobili, formerly of the Oregon Missions, to open a college at the Mission of Santa Clara. During the first academic year, 1851-52, Father Nobili and a faculty of three other Jesuit priests and four competent lay professors gave instruction to twenty-six students in arts, sciences, music and drama. By 1858, new scientific apparatus arrived from Paris and integrated courses in science as well as in the classics and in commerce were offered.

April 28, 1855, Santa Clara College received its charter from the State of California. Slow but steady growth followed and distinguished graduates became prominent members of California life. However it was not until the Schools of Law and Engineering were founded in 1912 and the courses in the Humanities and the Sciences were expanded that the College became the University Santa Clara.

Meeting the demands of urban growth in the Santa Clara Valley, the courses in commerce and finance were likewise amplified in 1926, and the University's School of Business Administration began.

In the same year, however, the old Mission Church was destroyed by fire. The present structure, an enlarged replica of the original, was completed in 1928 and consecrated by Archbishop John J. Mitty of San Francisco, October 9, 1936. It is roofed with the original mission tiles and contains many statues and paintings brought by the early Padres from Mexico. Likewise, most of the interior decorations of the church, especially the sanctuary ceiling, is a careful reproduction of that of the original Mission.

From the 1930's through World War II, the University's enrollment was relatively stable. With the return of many war veterans, came an enlarged student body, new resources and an expanded curriculum that led Santa Clara into a new era of rapid growth and development.

From the post-war period to the present, the face of the campus has been changing and expanding. Thanks to the generous support of many friends, twenty-three buildings have been added and still newer facilities—the Louis B. Mayer Theatre, Student Activities Center—and Cowell Student Health Center will be completed and ready for use by fall, 1975.

In 1961 the University announced a major change in policy and accepted women students for the first time in its 110 year history and quickly became fully coeducational.

Although the student body has grown rapidly in the past decade, it has been held at a relatively small size—3200 undergraduates and 3400 graduate and law students.

Since 1960 the number of courses taught has more than doubled and there has been a proliferation of opportunities for individual study and research, including off-campus work/study programs.

In 1964 the University adopted an academic plan and calendar which divides the school year into three eleven-week terms and limits the number of courses a student may take to three or four in each quarter period.

As a independent, tuition and gift supported university, Santa Clara has been able to accomplish change in ways that reflect its traditional concern for the individual student.

Today, the University of Santa Clara, the first institution to offer classes in higher learning on the West Coast, continues its Mission heritage of service by assisting its students to equip themselves with the best of humanistic values and knowledge. Academic excellence in a well-balanced human being is the University's goal.

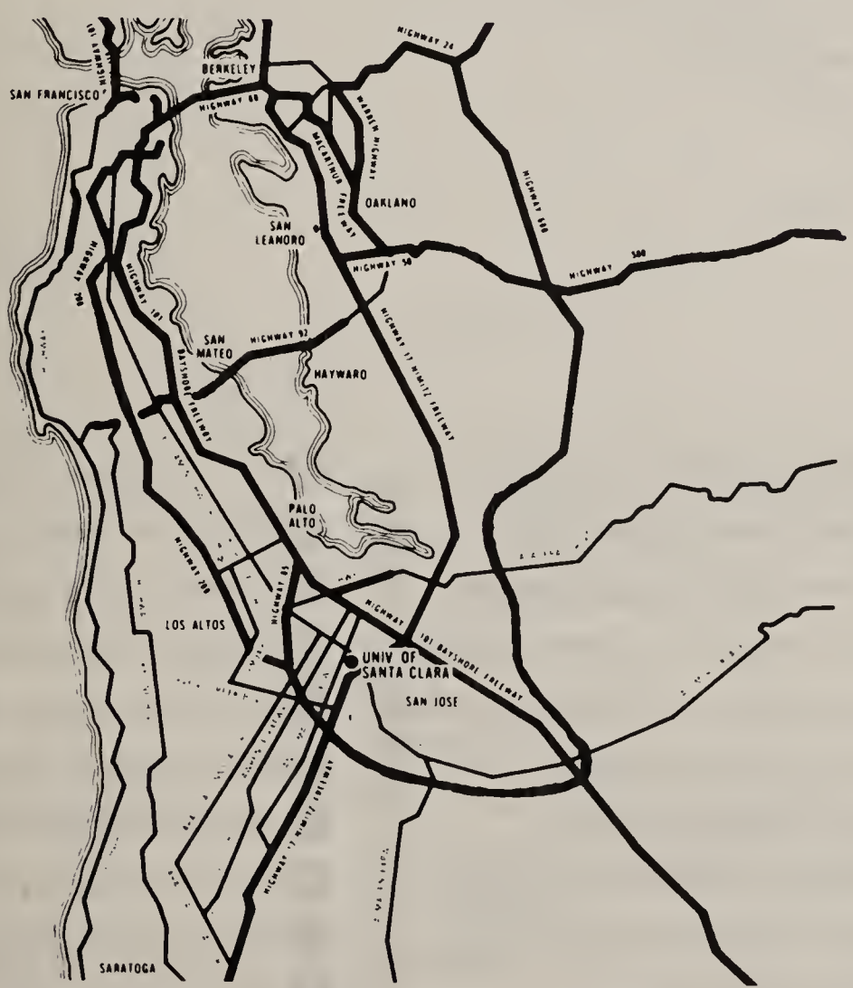
LOCATION

The University of Santa Clara is 46 miles from San Francisco near the southern tip of the Bay in an area that is rich in opportunities for learning. The campus is situated in the midst of one of the nation's great concentrations of high-technology industry and of professional and scientific activity. Many nearby firms and social agencies are world leaders in the search of solutions to man's most critical problems. The cultural and entertainment centers of San Francisco, Berkeley, Oakland and Marin County are within one hour's travel by bus, train or car. In the opposite direction, about thirty minutes away, are the beaches of Santa Cruz on the Pacific Ocean, and less than two-hours drive from the campus is world-famous Monterey Peninsula and Carmel.

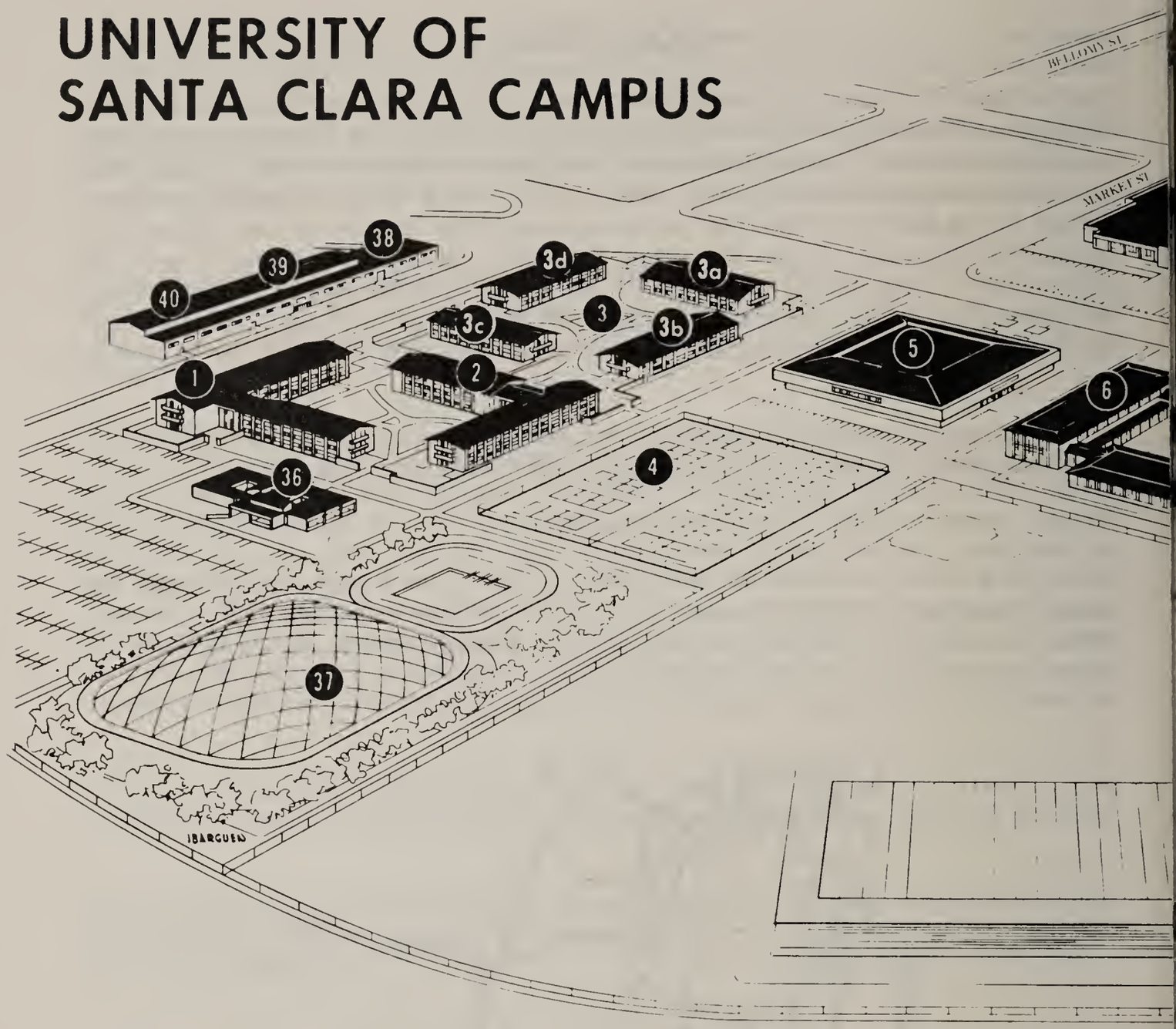
The University is accessible by major airlines via San Jose Municipal Airport just three miles away and via San Francisco and Oakland International Airports.

Climate

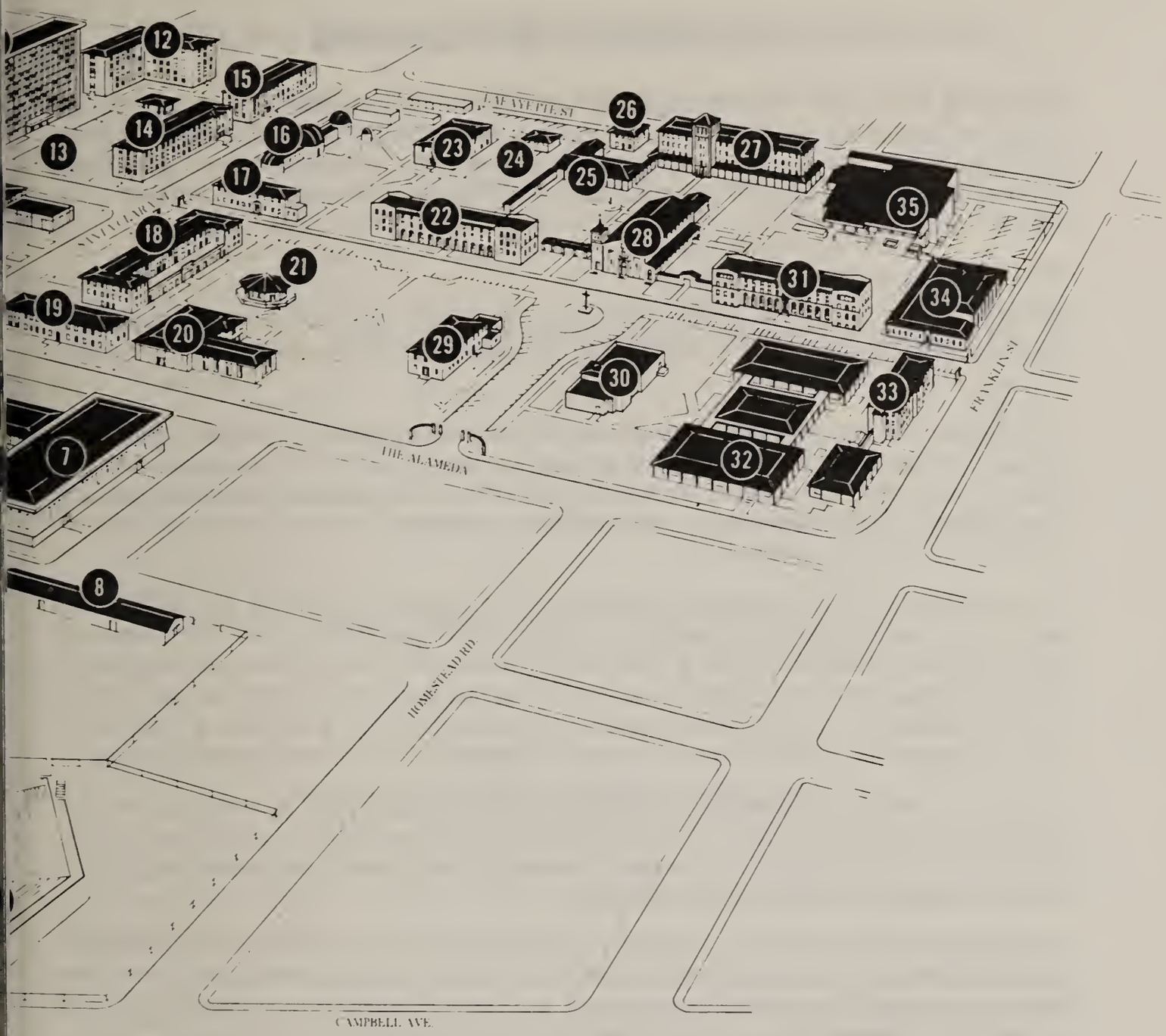
Santa Clara has a moderate Mediterranean climate. Over a period of 67 years the average maximum temperature was 71.4° and the average minimum 41.6° . The sun shines an average of 293 days a year and the average annual rainfall is about 15 inches.



UNIVERSITY OF SANTA CLARA CAMPUS



1. Sanfilippo Residence Hall
2. Campisi Residence Hall
3. Graham Residence Center
   - A Strub Hall
   - B Swig Hall
   - C O'Neill Hall
   - D Hancock Hall
4. Campus Tennis Courts
5. Michel Orradre Library
6. Sullivan Engineering Center
7. Bannan Classroom Building
8. Athletic Field House
9. Buck Shaw Stadium
10. Benson Memorial Center
11. Benjamin Swig Residence Hall
12. Dunne Residence Hall
13. John Kennedy Mall
14. McLaughlin Residence Hall
15. Walsh Residence Hall
16. Ricard Memorial Observatory
17. Donohoe Infirmary
18. Kenna Hall - School of Business



Bergin Hall - School of Law	30 De Saisset Art Gallery & Museum
Heafey Law Library	31 O'Connor Hall
Publications Center	32 Daly Science Center
St. Joseph's Hall - Jesuit Residence	33 Alumni Science Hall
Varsi Hall	34 Seifert Gymnasium
Restrooms	35 Mayer Theatre
Adobe Lodge - Faculty Club	36 Cowell Student Health Center
Service Building	37 Student Activities Center
Nobili Hall	38 Fine Arts
Mission Santa Clara	39 Ballet
Walsh Administration Building	40 Music

A STATEMENT OF PURPOSE

Inspired by the love of God through human service and the desire to serve through education, begun by the Franciscans who founded Mission Santa Clara in 1777 and continued by the Jesuits who opened the College in 1851, the University of Santa Clara declares its purpose to be the education of the human person in the context of its Catholic and Jesuit tradition.

The University is thus dedicated to:

the continuing development of a community of highly qualified scholars, teachers, students and administrators committed to an uncompromising standard of academic excellence;

providing an education that, in its emphasis on undergraduate education and in its pursuit of selected high quality graduate and professional programs consonant with such an education, stresses the development of moral as well as intellectual values, an education of the whole person, an education constantly seeking to answer not only "what is" but "what should be";

the continuing development of an academic community informed by Catholic principles, a community offering its members the opportunity for worship and for deepening their religious commitment, yet a community that is enriched by men and women of diverse religious and philosophical, as well as social and racial backgrounds, a community opposed to narrow indoctrination or proselytizing of any kind, a community wherein freedom of inquiry and freedom of expression enjoy the highest priority;

offering an integrated curriculum designed not only to provide the scientific and humanistic knowledge necessary to enable students to develop fully as persons, but also to demonstrate the unity of all forms of knowledge and to enable students to assume roles of leadership in the modern world;

encouragement of teaching excellence and of the scholarly research that promotes such excellence, of close student-teacher relationships, of experimental and innovative courses and teaching methods—courses and methods that not only stimulate the acquisition of knowledge, but the creative use of knowledge;

the continuing development of an academic community in which students, teachers and administrators dedicated to academic freedom and united in the search for truth, are actively involved in formulating and implementing the University's policies.

Board of Trustees
University of Santa Clara
January 22, 1975

DIVISIONS OF THE UNIVERSITY AND CURRICULA

Santa Clara offers varied undergraduate and graduate curricula. In the undergraduate schools and colleges the programs are:

College of Humanities

Classics, Education, English, Fine Arts, French, German, History, Italian, Music, Philosophy, Religious Studies, Spanish, Speech, Theatre Arts, and General Humanities. Honors in most of the preceding areas.

College of Sciences

Biology, Chemistry, Economics, Mathematics, Physics, Political Science, Psychology, Sociology, Combined Sciences. Honors in several of these major fields.

School of Business

Accounting, Economics, Finance, Marketing, Management and Quantitative Methods.

School of Engineering

Civil, Electrical and Mechanical Engineering and Applied Mathematics.

School of Law

College of Humanities

Education, English, History, Teacher Education.

MICHEL ORRADRE LIBRARY

In August, 1964, the holdings of the Varsi Library were transferred to the new and spacious Michel Orradre Library, named in honor of one of the principal donors, the Orradre family.

The new building now will hold 300,000 volumes and is designed to contain 600,00 volumes when further installations are made in the partially completed lower level.

The Library maintains an open shelf plan with special service areas grouped around the building's central core. The Library is an official depository for both California State and United States Governmental Documents.

The Library is open seven days a week for a total of 99 hours per week for the convenience and assistance of faculty, graduate and undergraduate students.

September, 1966, the holdings of the Michel Orradre Library in Biology, Chemistry and Physics were transferred to the new branch Science Library in the Edward Daly Science Center. Named after Mr. Frank Gentles, this collection will service the science departments in the immediate area for study and research.

STUDY ABROAD

Because of many culutral and academic advantages, the University of Santa Clara provides opportunities for study in Europe and Asia. Through its affilitation with the Institute of European Studies, junior students may study at Durham, London, Freiburg Madrid, Nantes, Paris or Vienna. In addition, the University is affiliated with the Rome program of Loyola University of Chicago and Gonzaga in Florence. Santa Clara also has a program with Sophia University in Tokyo, and with the Ateneo de Manila University in the Philippines. Santa Clara credit is give for work done at these centers. To enroll in any of these programs, the approval of the Director of Studies Abroad is required.

CENTER FOR CONTINUING EDUCATION

The Center for Continuing Education embraces those areas of academic endeavor not a part of the various Schools and Colleges of the University. This includes the six-week Summer Session and Extension Division.

The Center is responsible for all University-sponsored seminars, workshops and conferences.

SUMMER SESSION

The University sponsors a six-week session each summer that offers both day and evening courses for college credit. Course work is available on both the undergraduate, and graduate level in both the normal six-week period and short-term workshops. No transcript is required for admission. Courses are scheduled in art, business (undergraduate), economics, education, English, history, language, mathematics, music, philosophy, political science, psychology, sociology, and religious studies. Graduate courses applicable to a master's degree are offered in education, English, history, languages, and mathematics.

Institutes and workshops of one, two and three weeks duration are presented in education, counseling, writing, political and social science, and religious studies.

Summer programs in the Far East and in Europe are also available.

Advanced placement for high school students permits high achievers who have finished the eleventh grade to enroll for university credit in freshman level courses and in intermediate languages. Recent graduates of high school are also eligible to enroll.

Board and room are available for men and women at reasonable rates in the University's attractive dormitories.

Evening courses in the Graduate School of Business and in the School of Law, as well as early-morning graduate courses in the School of Engineering, are separately administered. Information concerning these is obtainable from the individual schools.

EXTENSION DIVISION

Through the Extension Division, the University makes its facilities for continuing education available to the general community and to business and industrial concerns. Evening classes are offered in the arts and humanities, certificate programs are presented in business, data processing, engineering, and finance.

In addition to the evening program, the Extension Division sponsors numerous workshops and seminars in writing, engineering, and business topics. The Institute for Professional Growth is operated by the Division for the production of seminars and lecture series in a large variety of subjects for educators. The Institute for Continuing Engineering Studies produces workshops for practicing engineers.

Permanent records of the evening courses are kept in the Division's office and certificates are offered upon the completion of a set of courses in a given discipline.

CAREER EDUCATION CENTER

The Career Education Center of the University of Santa Clara provides activities and services that relate directly to career guidance and instruction.

In-service training workshops relating to career education are conducted for elementary and secondary school teachers, counselors, and administrators. Also, instructional career programs are offered on an individualized study contract basis to students who are training to be teachers and counselors. Career information resources are accumulated and maintained for undergraduate students to utilize in making career decisions.

In addition, The Career Education Center provides consulting services for school districts that are developing career education programs.

AUDIO-VISUAL

The audio visual department provides equipment and services to faculty and students for classroom use and to campus organizations for extra-curricular events. Available

equipment includes projectors, record players, tape recorders, and public address systems. Some of the services are audio tape and photographic duplication, sound recording, and supplying personnel for operation of audio-visual presentations.

TELEVISION SERVICES

The television services provide for video viewing and recording of campus activities and academic courses. The University maintains a studio for controlled-production and provides portable equipment for other areas on campus.

The university will broadcast live to the Bay area sometime in the near future. Cable transmission is expected to be available within the next year.

WHERE TO WRITE

There is a central mail room on the campus to which all mail addressed to the University of Santa Clara, Santa Clara, California 95053, is delivered. It will expedite delivery on the campus to specify the following as indicated.

Correspondence relating to the general interest of the University:
Very Reverend Father President

Communications regarding curriculum, scholastic problems, degree problems:
The Dean of the particular school or the Academic Vice President

Admission Blanks and Entrance Requirements:
Director of Admissions

Alumni Affairs:
Executive Director, University of Santa Clara Alumni Council

Athletic Program:
Director of Athletics

Diplomas and Graduation:
Registrar

Extension and Summer Sessions:
Director of Continuing Education

Foreign Students:
Director of Admissions

Gifts, Grants and Bequests:*
Vice President for Development

Graduate Study:
The Dean of the particular school or college

Honors Program:
Director, Honors Program

Jesuit Community:
Very Reverend Father Rector

Personal Welfare and Health of Students:
Dean of Students

Placement:
Placement Office

Publicity:
News Director

Readmissions:
Registrar

Residence Accommodations and Student Housing:
Director of Housing

Scholarships:
Office of Financial Aids

Student Loans:
Office of Financial Aids

Teacher Certification and Placement:
Director of Teacher Education

Transcripts, Student Records:
Registrar

Tuition, Payment of Bills, Refunds:
Controller

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*THE UNIVERSITY'S LEGAL NAME is: *The President and Board of Trustees of Santa Clara College* to which should be added, *a Corporation, located at Santa Clara, California.* For the information of individual, corporation and foundation donors who wish the tax-benefits of their gifts and grants, the University is classified by the Internal Revenue Service as a 501(c)(3)(ii) tax-exempt organization and also as not a private foundation under Section 509(a) of the IRS code.

Student Life

Membership in groups and participation in extracurricular life are encouraged as such activity can be a valuable adjunct to the education of the Santa Clara man or woman. Although freshmen should limit their activities somewhat, they will readily find clubs whose purposes will correspond to their interests.

The Associated Students plan and administer an extensive social program which ranges from class—and group-sponsored picnics to more formal dances in prominent hotels in the San Francisco Bay Area. The University's proximity to San Francisco also allows it to bring the more famous personalities in the intellectual, cultural, and entertainment world to its campus.

Each student will find that the personal touch is very much a part of the Santa Clara tradition. Freshman Orientation is planned with the idea of familiarizing new students with the various phases of campus life. A large representation of upperclassmen will be on hand to meet with new students and to assist with the problems particular to incoming students. Special counseling and orientation plans for upper class transfer students take place prior to registration. The Fall Homecoming Weekend, scheduled for early autumn, is not only a highlight of the social calendar but also serves an an excellent way for students to become acquainted with each other and with the alumni.

The personal approach does not end with Orientation, nor is it restricted to student relationships. Faculty seminars in dormitory lounges and informal get-togethers provide relaxing medium for discussion and enjoyment.

The University feels that an active cultural and social program is an essential part of the educative process. Accordingly, the ASUSC and various organizations, under the supervision of the Dean of Students, execute an extensive and varied activities program. The new Mayer Theatre is expected to become the focal point for many of these activities.

The major intercollegiate sports are football, baseball, and basketball; other sports include tennis, water polo, soccer, swimming, crew, bowling and rugby. A full complement of intramural athletics is available for any student who wishes to participate.

The University maintains a program of instructional, intramural and intercollegiate activities for women. Tennis, swimming, volleyball, basketball, badminton, water-safety and many other sports are included, a number on a corecreational basis. Participation is open to all students according to interest and time limitations.

Although Santa Clara has grown rapidly in the last few years, it retains a friendly atmosphere and a personal relationship environment for which it is famous. This is a vital part of student life and an essential part of the University's particular kind of education.

STUDENT CONDUCT

The problem of conduct is a serious mandate on any University that accepts the responsibility for guiding students to maturity in an environment which respects human rights. Many students are away from home for the first time in their lives; others are finding new horizons opening to them as their educational experiences broaden.

The nature of the University demands that it operate in an academic atmosphere, in an intellectual and reasonable manner, and through orderly procedures—all in the pursuit of truth and wisdom. The preservation of rationality in the University is a necessity if it is to survive. Thus, any act or conduct which infringes on the rights of others, which restrains freedom of movement and expression, which is contrary to the maintenance of good order, and which is disruptive of the University's operation, either in whole or in part, is unacceptable and a violation of the University's rule of good order. Actions or conduct violating any local, state, or federal law are per se a violation of the University's rules and regulations.

Students who participate in any act or conduct contrary to the University's rules and regulations shall be disciplined according to the Manual for the Administration of Student Discipline. Serious violations may lead to disqualification or a lesser sanction. Copies of this manual are obtainable on request from the Office of the Dean of Students.

The rules and regulations of the University are not solely restrictive; they serve as a means to an end and are designed to aid in the development of each student.

STUDENT HOUSING

The University maintains 11 dormitories for men and women. They provide as homelike an atmosphere as possible within the framework of the University's educational requirements. While the vast majority of these residences are coeducational, with men and women occupying different floors or separate wings of the same building, a few dorms are reserved for students who prefer to reside in an all-male or all-female setting. Three swimming pools are available. Upperclassmen are encouraged to select their roommates, so personal preferences may be served as much as possible. This privilege is not accorded freshmen.

Acceptance to the University as an undergraduate automatically includes acceptance in a residence hall. Undergraduate students who do not live with parents or other adult

members of their families must live on campus. A Housing deposit has to be submitted as soon as acceptance notification has been received. Students who move off campus before receiving official approval, will be subject to room and board charges up to the time such approval is given.

Room assignments are made by the Housing Office, but not until the housing deposit is received. (Single rooms are available on a limited basis.) Freshman will receive room assignments by mail no later than the month of August. Sophomores, juniors, and seniors may request a specific hall and/or roommate, if they wish. The applications are called "Room Reservation Request Forms" and must be completed along with the "Pre-registration Forms."

These forms will be distributed by the Housing Office to returning students the first of April. The returning students must submit forms to the Housing Office with their deposit. The deadline for returning these forms is on or before May 1st. Anyone who wishes a nonsmoker for a roommate should make this request to the Director of Housing on or before May 1st.

Rooms are provided with beds, mattresses, towel racks, bookcases, chairs, desks, chests of drawers, and medicine chests. A charge will be made for damage to rooms of furniture. Students must provide blankets, sheets, towels, pillows, pillowcases, washclothes, bedspreads, and desk lamps. Helpful extras could include a typewriter, an alarm clock, ash trays, a mending kit, and closet accessories.

Special service rooms are conveniently located in each building, with proper outlets for electric irons, heaters, sun lamps, hair dryers, and such appliances which are not permitted in the rooms. There is a linen rental, laundry and dry-cleaning service available on campus for the convenience of the students. Television sets for student use are in various locations in the residence halls.

STUDENT GOVERNMENT

The system of student government at Santa Clara makes the students themselves responsible for the conduct of student affairs.

Students organize and supervise academic, cultural, and social activities through class government, clubs, and committees. Through the Board of Governor, the students establish the rules and regulations and sanctions governing student activity at athletic and social events, and at extracurricular events on campus. Dorm Councils are an adjunct of student government. They share with the residence hall staff the responsibility of regulating student life in the halls as well as promoting academic, religious and social programs to resident students.

Law students have their own Student Bar Association as the instrument of student government in the School of Law. Therefore, law students are not represented on the Board of Governors and are not subject to the jurisdiction of the Student Senate or the Board of Student Conduct.

Student government at Santa Clara plays a vital role in the education of the students. As a genuine government of the students by the students, it develops responsibility and integrity in individual students.

Students also participate in unversity-wide governance through representation on the University Community Council, and on the University committees advisory to the president.

Associated Students

The Associated Students of the University of Santa Clara (ASUSC) is the student body organized for the conduct of student government. All fee-paying registered students are members.

The purposes of the ASUSC are to further the best interests of the University and its students, to encourage student activities, and to provide valuable experience and training in self-government and responsibility.

COUNSELING SERVICES

A variety of counseling services are conveniently available to all students. The University Chaplain and his assistant provide religious guidance in personal interviews and during the University retreats. The deans of the Colleges and Schools and the professors of the student's major department usually take care of the academic counseling of the students.

The University Counseling Center is complementary to, and supportive of, the total university counseling, guidance, and advisement effort. A professional staff os psychologists and guidance specialists is available to aid the students in dealing with academic, occupational planning, and personal-social problems which may confront them as maturing men and women. Counseling and testing procedures are used that are appropriate to the student's needs. The fundamental objective of these services is to enable the student to use his own resources in dealing with the problems he confronts.

GRADUATE FELLOWSHIPS OFFICE

The Graduate Fellowships Office assists University of Santa Clara seniors who plan to enter graduate or professional studies. It counsels these students in the selection of

schools and in securing financial aid. This aid comes chiefly from private and public agencies offering fellowships and other grants through national and international competition. For competitions in which candidates must be officially nominated or endorsed by the University, the director of the Graduate Fellowships Office together with several members of the faculty selects nominees and makes the endorsements.

The Graduate Fellowships Office maintains a collection of current graduate and professional school directories, graduate division catalogues and other sources of special information pertaining to graduate study and financial assistance. The collection is available to all students, alumni and faculty members.

This office does not award fellowships, scholarships or other financial assistance for study at Santa Clara. These matters are managed by the Office of Financial Aid and by the graduate admissions offices of the respective Colleges and Schools in the University.

PLACEMENT SERVICES

The Career Planning and Placement Center is located on the second floor of the Benson Memorial Center, Room 208. The center offers a variety of services and facilities to all undergraduates, graduate students, and alumni of the University.

Employment opportunities, full—and part-time, on—and off-campus, are posted outside the office where they are accessible at any time. Additional information on these and other career opportunities is available inside the office.

Each year an on-campus recruiting schedule is arranged for graduating students seeking career employment. Numerous firms and government agencies participate actively in the program throughout the year. Graduating students are provided with copies of the interviewing schedule and are encouraged to take advantage of the opportunity.

There is a library with a wide range of literature about careers, descriptive brochures of the companies and agencies that recruit on campus, plus information on many others.

Additional services offered are counseling on career planning, instruction on interview and resume techniques, and advice on other aspects of employment research.

The office of the Alumni Career Advisory Coordinator is also located in the center. Through this facility students with particular career interests have the opportunity to obtain information directly from alumni who are actively involved in related careers.

STUDENT HEALTH SERVICE

The Student Health Service is located in the new Cowell Health Center on the campus and is under the supervision of the University Director of Medical Services.

All full-time undergraduate students and full—time law students are eligible for medical care under the following conditions:

1. The Student Health Service has a physician in attendance from 8 a.m. to 5 p.m., Monday through Friday while classes are in session. Visits to the Student Health Service during these hours should be made by calling the infirmary for an appointment. At all other times while the University is in session, medical care is available in cases of bona fide emergencies. The Student Health Service may be contacted through the infirmary or the University switchboard operator. With the exception of drugs, laboratory work and X-ray, no fee is charged to students utilizing the service.
2. X-rays, laboratory work, general hospital charges, consultations by physicians other than the University physicians and medical care rendered at a general hospital (with the exception of emergency room visits by one of the University physicians) will be charged to the student.
3. In-patient care is available to undergraduate resident students and day law students only, at no charge.
4. All students, of course, have the right to obtain medical care outside of the services offered by the Student Health Service, but in that case, the financial obligation for such care is the responsibility of that student.

All students are required to have a pre-entrance health examination by their personal physician. The results of such an examination are to be reported to the Student Health Service on the form designated by the University on or before the date of registration.

ATHLETICS

The University of Santa Clara maintains a well-balanced program of intercollegiate and intramural athletics for the benefit of the student body. All these activities are designed to supplement the traditional academic curriculum. Intercollegiate competition is conducted in football, basketball, baseball, tennis, water polo, golf, soccer, crew, bowling, swimming and rugby against opponents of recognized national standing. The University is a member of the National Collegiate Athletic Association and the West Coast Athletic Conference.

A full program of intramural athletics in which all students are encouraged to participate is conducted under the direction of the Director of Intramural Sports.

Facilities for athletic activities include the new, two-acre Thomas E. Leavey Activities Center, which has gained national attention for its air-supported roof, with a 5,000-

seat basketball pavilion and two smaller arenas, handball courts, weight training room, indoor track, 25-meter by 25-yard swimming pool and other facilities; centrally located tennis courts and athletic fields for football, baseball, softball, soccer, and rugby.

The women's recreational department, serving some 1500 students, offers intercollegiate competition in basketball, volleyball, tennis, swimming and badminton and a varied instructional intramural program in swimming and water safety, first aid, tennis, golf, and flag football.

The women's recreational department also coordinates a co-rec (men-women) program in volleyball, softball, tennis, badminton, water safety and first aid.

Athletic Officers

Patrick Carroll, S.J. ..... Moderator
George Giacomini, M.A. ..... Faculty Representative
George P. Malley, B.S. ..... Director of Athletics and Football
Carroll Williams, M.S. ..... Basketball
Salvador F. Taormina ..... Baseball
Marygrace Colby, M.A. ..... Director of Women's Recreation
June Breda ..... Assistant Director of Women's Recreation

Staff Members

John Albanase
Raymond Anderson, B.A.
June Breda, M.S.
Robert Carter, M.A.
David Chaplik, B.A.
Robert Cicchi, M.A.
Richard W. Degnon,B.A.
John Hawkins, B.S.
Kathryn B. Ivers
Andrew Locatelli, M.S.
Pat Lovell, M.A.
Louis Lucas, B.A.
Ron Modeste, M.A.
Trish Moore, M.S.
John Pasco, J.D.
Louis Pastorini, M.A.
Eric Paulson, M.A.
Bob Phelps, B.S.
Edwin Pugh
S. M. Sanfilippo, J.D.
Henry Schmidt, B.S.
Edward Titus, M.A.
John Walsh
Robert Wegman, B.S.

RELIGIOUS ACTIVITIES

The group of priests and laity who comprise the Chaplain's Office serve as facilitators for a variety of opportunities through which members of the University Community are enabled to deepen their understanding and experience of themselves as humans and as Christians.

Central to the expression of Christian life on campus is the liturgy. Each weekend six Masses, celebrated with different styles of liturgy, are provided for the University Community. Five of these Masses are coordinated by groups of students working with the celebrant. Other Masses are provided during the weekdays and for specific groups.

as the need arises. In addition, marriages, baptisms, and communal celebrations of penance are provided for members of the University Community.

During the year, the Chaplain's Office sponsors a variety of weekend experiences for different segments of the University Community.

All members of the Chaplain's Office are engaged in varying degrees in providing counselling for members of the University Community.

The main religious organization on campus is the Christian Life Community, a 'community' of Christian men and women of Santa Clara who freely commit themselves to the service of God and mankind according to a specific spirituality based on the Spiritual Exercises of St. Ignatius of Loyola.

STUDENT ORGANIZATIONS

There are a number of national and departmental organizations on campus to which students may belong. These organizations generally fall into two categories: those that recognize achievement of individual students in their chosen academic fields and those special interest organizations which permit individual students an opportunity to meet with others having the same interests.

The University of Santa Clara does not recognize national social fraternities or sororities.

A complete listing of student organizations is given in the *Student Handbook,* available each year to all members of the student body.

GENERAL ACHIEVEMENT AWARDS

Nobili Medal: An annual prize of a gold medal founded by Joseph A. Donohoe, in honor of the first President of Santa Clara, the Rev. John Nobili, S.J., to be awarded to the male student who shall be judged outstanding in personal character, school activities and constructive contribution to the University.

Saint Clare Medal: An annual prize of a gold medal, established by the University of Santa Clara, to be awarded to the woman student judged outstanding in personal character, school activities and constructive contribution to the University.

COLLEGE PRIZES

Business Administration Prize: An engraved key given by the Business Administration Association tp the senior in the School of Business who shall have made the greatest contribution to the School of Business.

The Isabel Jones Prize: An annual prize donated in memory of Mrs. Isabel Jones by her husband, Dr. Eliot Jones, to be given to the senior student of the School of Business who is judged by the Faculty of that School to be outstanding in scholarship.

The Charles J. Dirksen Prize: An annual prize donated by Dr. Eliot Jones in honor of Dean Charles J. Dirksen to be given to the junior student in the School of Business who is judged by the Faculty of that School to be outstanding in scholarship.

The Orella Prize: An annual award established in 1915 by the late Dr. Firmin R. Orella, B.S. '89, and funded in 1945 by his wife, Albertine S. Orella, to be given to the senior student in the departments of science who attains the highest average in scientific subjects during the junior and senior years.

The Schwartz Prize: Two annual prizes donated in 1955 by Dr. Sidney L. Schwartz of San Francisco, to be given to stduents submitting papers in Finance and Business or Economics which shall be judged outstanding by the Faculty of the School of Business.

Freshman Mathematics Prize: An annual award of books to a freshman student selected by the Mathematics Faculty for excellence in mathematical study and achievement during his freshman year.

The George W. Evans II Memorial Prizes: Two prizes awarded each year to the man and woman placing highest in the William Lowell Putnam Mathematical Competition. The prize fund was established by the family and friends of the late Dr. George W. Evans II of the Department of Mathematics.

DEPARTMENTAL PRIZES

Professor O. Robert Anderson Key: An engraved key in memory of Professor O. Robert Anderson to be given to the senior student in Accounting who is judged by the faculty of the Accounting Department of the School of Business to be outstanding in scholarship.

The Religious Studies Prize: A prize given by the President of the University, awarded annually to an upper-division student, for proficiency in religious studies selected on conditions set down by the department of Religious Studies.

Santa Barbara Medals: Four gold medals, given by the President of the University, to be awarded annually, on the recommendation of the Professor of Military Science, to the outstanding cadet in each of the four years of training.

The Sourisseau Prize: An annual prize founded in 1955 by Miss Eva Sourisseau of San Jose, in honor of her parents and family, to be given to the senior student of the University who shall be selected by the Department of Philosophy for outstanding philosophical achievement.

The Professor Joseph F. Deck Award: An annual prize to the outstanding chemistry major senior who has excelled in extracurricular activities, leadership, generous tutoring of fellow chemistry students, and undergraduate research, and who has maintained a B average withal.

The Michael Shallo Prize in Political Science: An annual prize founded in 1955 by the University, in honor of Father Michael Shallo, S.J., Professor of Political Philosophy, to be given to the student of the University selected by competition as the most proficient in political science.

The Finance Medal: Awarded to the senior majoring in finance with the highest scholastic average.

The Civic Club Italian Prizes: Three prizes contributed in 1949 and thereafer by the Civic Club of San Jose, to encourage the study of Italian language and culture, to be given to the students attaining the three successively highest grades in the study of Italian.

The Medal of the Association of the Army of the United States: Awarded to the outstanding cadet of the first year of the Advanced Curriculum of ROTC, for exceptionally meritorious academic attainments, exemplary conduct, efficiency, and fidelity.

Department of the Army Superior Cadet Ribbon Award: Four ribbons awarded annually by the Department of the Army to the outstanding cadet in each academic class of Senior Division ROTC program at the University who has consistently demonstrated potential qualities as an office.

The Armed Forces Communications and Electronics Award: For academic achievement and meritorious contribution to the ROTC program by a senior cadet in a communications or electronics-related field.

The Ryland-Owl Prizes: The Hon. Caius T. Ryland founded in 1897 an annual purse leaving its disposition to the discretion of the Faculty. This the Faculty, after due consideration, assigned to the University Literary Congress, organized February 22, 1857, establishing the Ryland Debate to be held yearly between the two branches, the Senate and the House, and divided the purse into three prizes. The directors of the College Magazine, "The Owl," founded an annual prize to be given to the winner of an oratorical contest in the University. Since the oratorical contest is no longer held, the prize formerly awarded for the competition is now added to Ryland Debate prizes.

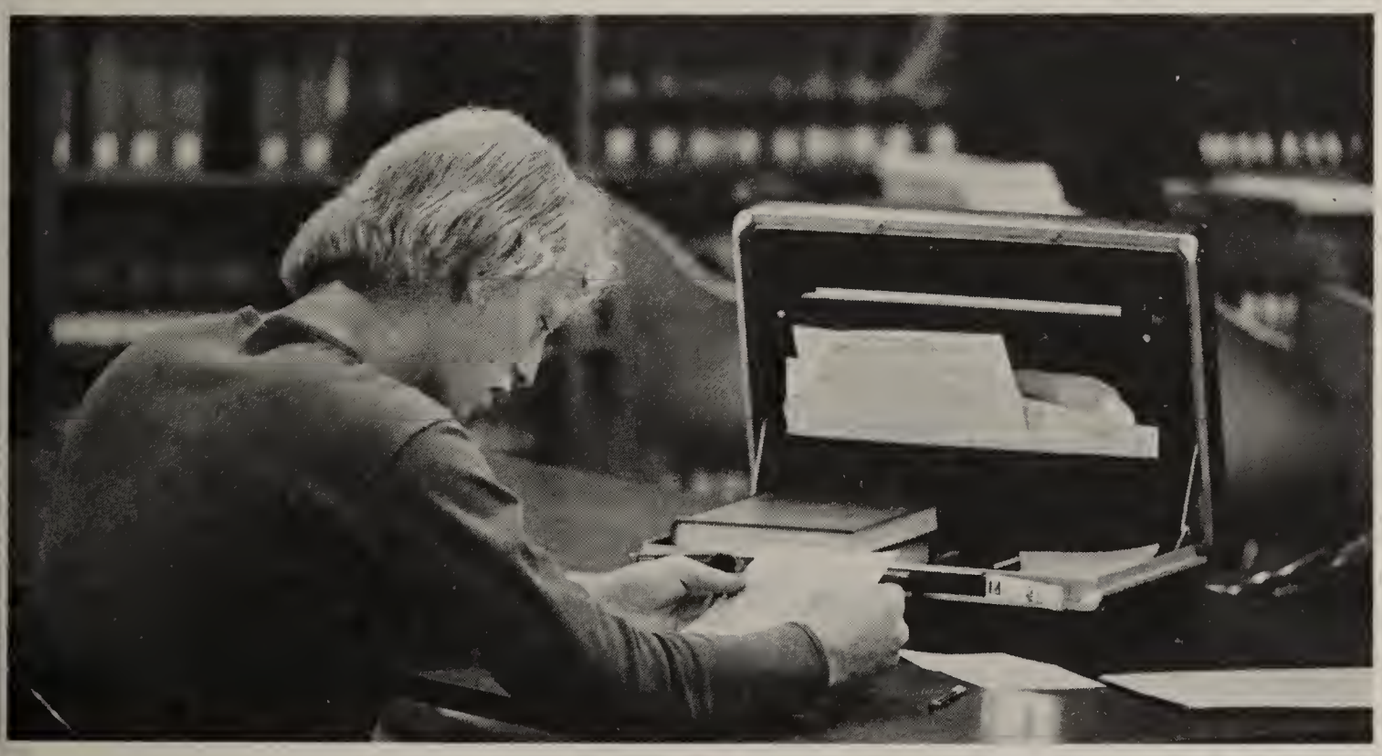
The William H. Leahy Prize: This prize was founded in honor of Mr. William Leahy by his wife and his brother, Mr. James Leahy, for proficiency in acting.

The Handlery Prize: An annual prize founded by Mrs. Rose Handlery, in memory of her son, Raymond, of the class of 1934, to be given to the senior student of the University who will have contributed most to the success of any of the University student publications.

The McCann Prize: Annual prize founded in honor of Daniel M. McCann, B.S., '84, to be given for the best short story.

The Redwood Prize: Annual prize founded in 1908 by the executive committe of "The Redwood," and given for the best essay on an historical subject.

The Shipsey Poetry Prize: An annual prize founded in 1954 by Richard M. Schmidt, in honor of the late Reverend Edward Shipsey, S.J., to be presented to the student selected by the Faculty of the Department of English for the most outstanding contribution in the art of poetry.



Academic Information

CRITERIA FOR ADMISSION

The University makes selective and individual decisions on the applicants for admission. Freshmen applicants are offered admission, based on the following criteria (in order of importance): first, secondary school record; second, scores on College Entrance Examination Board tests; third, school recommendation; fourth, personal factors such as extracurricular involvement, character, leadership; fifth, relationship to the University. The offer of admission to high school seniors for freshman standing is contingent upon the applicant's graduation from an accredited high school. It should be unnecessary to state that the University welcomes students of all ethnic and religious backgrounds.

RECOMMENDED COURES

The following high school courses are recommended for a student applying for admission to the University as a freshman:

	NUMBER OF UNITS		
Course	*Humanities Majors*	*Business & Social Science Majors*	*Natural Science, Mathematics and Engineering Majors*
Algebra	1	2	2
English	3	3	3
History	1	1	1
One foreign language	2	2	2
Plane geometry	1	1	1
Lab science (upper division)	1	1	2*
Trigonometry			½
Optional+	7	6	4½

*Physics and Chemistry are required lab science for Natural Science and Engineering Majors

+Optional courses must be in advanced foreign languages, mathematics, laboratory science, or other solid college-preparatory courses.

ADMISSION PROCEDURE

The prospective freshman student should:

1. File his application and service fee of $20.00 with the Admissions Office, University of Santa Clara (application forms may be obtained from that office).
2. Submit a recommendation from his school, evaluating scholastic ability and character, to the Admissions Office (recommendation form is provided with application.
3. Request his high school to send a transcript of work, after 3½ years of high school (spring semester to the senior year) to the University of Santa Clara.
4. Take the Scholastic Aptitude Test of the College Entrance Examination Board in January of the senior year or earlier, and request that scores be sent to the University. For information on dates and places of this test write to the College Entrance Examination Board, Box 1025, Berkeley, California 94701, or Box 592, Princeton, New Jersey 08540.
5. Make certain all the above are completed, and the required materials are submitted to the Admissions Office by March 1. Full consideration cannot be assured for applications received after that date.

Sixth-Semester Decision

Students who have earned a 3.5 grade average (4.0 being straight A) in the first three years of high school work may seek an admissions decision after their sixth semester. Their application should be clearly identified. Transcripts reflecting six semesters of work and recommendation forms should be sent by the high school. The decision concerning admission will be rendered promptly. It is requested that early decision applicants submit College Board scores during the junior year or in the summer before the senior year. Students notified of acceptance after six semesters of high school work will not have to make the normal admission deposit until May 1 of their eighth semester, since it is assumed that a student applying under this special category will, if accepted, enter the University.

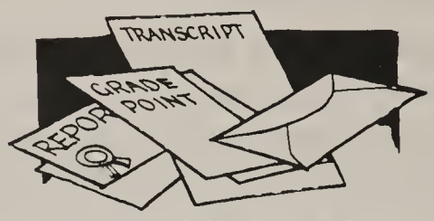
Advanced Placement

Advanced placement and College credit may be obtained through the College Board Advanced Placement Program. The student will be notified of the placement and credit the University will grant after scores are received.

Admission of Foreign Students

Candidates for admission who come from foreign countries must present a score in the Test of English as a Foreign Language, which is administered by the Educational Testing Service. Foreign students, both freshmen and advanced standing applicants, must also take the Scholastic Aptitude Test of the College Entrance Examination Board. In order to be issued Immigration Form I-20, applicant must be accepted as a full time student working toward a degree.

ADMISSION TO ADVANCED STANDING (TRANSFERS)



General University

The University accepts a number of transfer students, principally at the sophomore and junior levels, each year.

Since applications greatly exceed the number of such students who can be accommodated, and are increasing each year, no specific statement can be made about the quality of work (g.p.a.) which will enable a transfer applicant to be accepted. Only students in good standing at the last college attended will be considered. No student on academic or disciplinary probation, or suspension, will be considered for admission.

There is no minimum number of units required for transfer admission. An exception to this is the student who was not acceptable as a freshman. Such a student cannot be considered until he or she has completed at least 45 quarter units or 30 semester units of college work. In general, a student is classified by the number of units applicable to his degree program.

The Scholastic Aptitude Test of the College Entrance Examination Board is required to transfer applicants who have completed less than 45 quarter units or 30 semester units.

Transfer students may apply for admission for Fall, Winter and Spring quarters. Deadlines for applications to those terms are: Fall—July 1; Winter—Nov. 15; Spring—Feb. 15.

Transfer credit is fixed by the Deans of the College following the student's acceptance, and submission of regigtration deposit. No evaluation can be made before that time. The following general statements apply to transfer credit:

a. Courses from accredited four year institutions are generally acceptable if similar to courses listed in the *University of Santa Clara Bulletin.* Courses from accredited two year institutions are generally transferable under the same conditions, if (in California community colleges), they are designated as University transferable.
b. Courses of a technical or trade nature do not transfer.
c. Courses from non-accredited institutions, trade schools, extension or correspondence programs do not transfer.

School of Business and Administration

Students who transfer to the School of Business from other universities and community colleges, in order to have full junior standing, should complete during their first two years of college, a minimum of 60 semester or 90 quarter units. Required in these units will be six semester or nine quarter units of Principles of Accounting, six semester or nine quarter units of Principles of Economics and six semester or nine quarter units of Mathematics. It is sometimes possible to include a limited number of these above courses in the Junior and/or Senior years.

School of Engineering

Admission to advanced standing is by specific action of the Committee on Academic Standing, which will evaluate all credits presented and determine the rating of the candidate.

The student normally will be admitted to advanced standing if he has completed during his first two years, a minimum of 60 semester, or 90 quarter units. Included in the units must be 12 semester or 18 quarter hours of Analytical Geometry and Calculus, 6 semester or 9 quarter hours of Chemistry or Biology, and 10 semester or 15 quarter hours of Physics for Engineering and Science students.

Financial Information

STUDENT EXPENSES
1975-76

Application Fee ..... **$ 20.00**
This charge is to be sent with each application form and is not refundable.

Deposits:

All new students or students reapplying for admission **$100.00**
This amount is automatically credited to the student's account at registration or at the time of full-tuition payment. This deposit is not refundable.

All returning undergraduate students must make the deposits indicated below by *May 1st.*

A deposit of $100.00 is required for all returning boarding students.
A deposit of $50.00 is required of all returning day students.
These deposits are not refundable after *June 30th.* Transfer from boarding to day student status after this date will result in forfeiture of $50.00 of the deposit.

Tuition per Quarter* **$836.00**

Part-Time Tuition (see definition of part-time student below.)
1 term course **$280.00**
2 term courses **$513.00**

Room and Board per Quarter** **$502.00**
Tuition, Room and Board are due and payable in full on the day of registration.

Fee for each change in scheduled course ..... **$ 2.00**

Fee for challenging a course (per course) ..... **$ 10.00**

Late Registration Fee ..... **$ 20.00**

Late submission of Form Fee (administrative forms, e.g. pre-registration, application for degrees, etc.—per day) ..... **$ 2.00**

Fee for Replacement of Identification Card ..... **$ 2.00**

Breakage deposit for Chemistry Courses with laboratory, depending on course ..... **$5.00-$20.00**
(Unused amount returned to student at close of course.)

Additional copies of student's transcript of grades (each copy of transcript) ..... **$ 1.50**

Graduation Fee ..... **$ 25.00**

For Graduate Business, Engineering, Humanities, Law, and Summer Session, tuition and fees—see announcements of the various Graduate programs and Summer Session.

Charges for loss or damage in residence halls or to special equipment will be billed directly to the student and parents upon report of damage or loss.

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*Tuition per quarter includes a refundable fee of $1.00 for student membership in Nor Cal PIRG.

**Room and Board charges during winter and spring recess: By arrangement with the Director of Housing.

Special Information: A full-time student who drops courses during the term will be considered full time for the balance of that term for tuition purposes.

Part-Time Students:

A Part-Time Student is defined as a Lower Division Student taking less than three (3) term courses, or an Upper-Division Student taking less than two (2) term courses.

METHOD OF PAYMENT

Students should come prepared to pay all charges on the day of registration, or should have payments from home in the mail to reach the University at least TWO WEEKS prior to the date of registration.

Remittances should be made payable to the "University of Santa Clara" and mailed to the Business Office.

Students who have unpaid bills at the University or who defer payment without approval are subject to dismissal from the University and, as long as such payments remain unpaid, may not receive transcripts of credit nor any diploma.

For those who are not financailly able to pay the full term charges in advance, there are several tuition plans administered by outside financing agencies which are available. Those who plan to avail themselves of one of these services should request information from the University at least three months prior to registration.

In addition, the University has several loan funds which are available to students and their parents.

REFUNDS

No refunds will be made by virtue of curtailment of services brought about as a result of strikes, acts of God, civil insurrection, riots or the threat thereof, or other causes beyond the control of the University.

REFUND OF TUITION: FULL-TIME STUDENTS

Students who withdraw from the University may receive refunds of tuition according to the following schedule:

For withdrawal prior to the first Monday after registration:
payment refunded *minus*..... $180.00
For withdrawal prior to the second Monday after registration:
payment refunded *minus*..... $245.00
For withdrawal prior to the fourth Monday after registration:
payment refunded *minus*..... $350.00

No further refunds of tuition will be allowed.

REFUND OF TUITION: PART-TIME STUDENTS

Students who withdraw from the University may receive refunds of tuition according to the following schedule, per course:

For withdrawal prior to the first Monday after registration:
payment refunded *minus*..... $ 100.00
For withdrawal prior to the second Monday after registration:
payment refunded *minus*..... $115.00
For withdrawal prior to the fourth Monday after registration:
payment refunded *minus*..... $160.00
No further refunds of tuition will be allowed.

REFUND OF ROOM AND BOARD

Refund of unused board will be prorated from the Monday following the date of withdrawal.

No refund will be made of the payment for a room in the University's residence halls.

Refunds cannot be processed until one month after the student's withdrawal.

The above fees and charges are subject to change without notice.

FINANCIAL AID

To assist deserving students in continuing their education, the University of Santa Clara maintains a broadly-based financial aids program of scholarships, loans, grants and part-time employment. Administered by the Office of Financial Aids, these resources help bridge the gap between the cost of education and what parents and students can reasonably contribute.

The College Scholarship Service, of which the University of Santa Clara is a member, cooperates in this task by estimating the financial need of each student from information supplied on the Parents' Confidential Statement. On the basis of this recommendation and subject to the availability of funds, the Office of Financial Aids is then able to prepare a "package" of aids for which the student qualifies. This could include a scholarship, loan, grant or part-time employment under the work-study program or any combination of the four.

The cost of a college education today is expensive, but not prohibitive. A family, therefore, is expected to make a maximum effort to assist the student with college expenses. Financial help from the University and from other sources should be viewed only as supplementary to the efforts of the family.

The Office of Financial Aids maintains a staff of counselors who are most willing to talk with prospective students and their families regarding the financing of their education.

These people will provide assistance to both parents and students in the burdensome and sometimes confusing process of financing a college education.

More complete information about the University of Santa Clara Financial Aids program is available in the *Financial Aids Bulletin,* published by the Office of Financial Aids.

Applying for Financial Aids

The different aids (scholarships, grants, loans, employment, etc.) vary in amounts and are renewable on a year to year basis provided the student fulfills the University's requirements and reapplies each year. The amount awarded in each type of assistance may vary from year to year depending upon the applicant's family financial circumstances. To apply for financial aid consideration, a student must:

1. Check the appropriate box on the application for admission.
2. Submit a copy of the Parents' Confidential Statement, designating that the University of Santa Clara receive a copy. (C.S.S. code 4581)
3. Complete an application for the California State Scholarship and/or the Basic Opportunity Grant, as appropriate.
4. Arrange to take the Scholastic Aptitude Test of the College Entrance Examination Board. California residents must take the test no later than the December test date to qualify for California State Scholarships.
5. Applications for admission from students requesting scholarship consideration must be submitted no later than January 15th.
6. The deadline for Freshman students to apply for financial aid is June 1st. Transfer students must supply a record of all financial aid received at previous institutions before they will be considered for aid. Transfer students must apply by July 1st.

Freshman applicants who submit all required documentation and whose completed application is on file in the Office of Financial Aids by February 15th preceding September enrollment will be notified of the disposition of their application not later than April 15th; transfer applicants will be notified not later than August 1st. Applications that arrive late or incomplete will receive last priority of consideration and time may not permit notification to the applicant.

Present students must submit all necessary documentation in time to arrive at the Office of Financial Aids not later than May 1st. Detailed information may be obtained by consulting the Financial Aids Brochure. Forms are available at the Office of Financial Aids.

The University supports a limited grant program for disadvantaged students. Detailed information may be obtained by writing to the Special Assistants to the Dean of Students for either Mexican-American of Afro-American Affairs, University of Santa Clara, Santa Clara, CA., 95053.

Aid Qualifications

In selecting students to receive financial aid, evidence of financial need is required. Once this criterion has been met, priority of consideration for the limited funds is given to applicants with the highest scholastic attainments. Students of exceptional academic merit should write to the Director of the Honors Program.

Scholarship recipients are expected to maintain an overall grade point average of 3.00. All other aid recipients must maintain a GPA of 2.00. All financial aid recipients must remain enrolled as full-time students for each quarter that aid is received and must make satisfactory progress towards a degree. Financial aid may be terminated at any time for serious infractions of the University's rules and regulations. As a general rule, graduate and professional students will receive consideration for financial aid after the undergraduate needs have been met. As a general rule, financial aid is not available for non-citizens unless they are in the United State on a permanent basis and have made application for citizenship.

Loans

Because scholarships and grants are limited, many students applying for aid find the most advantageous method of financing their education through a loan program. Among those available to students are the National Direct Student Loan program and Federally Insured Loans. Application forms and further information may be obtained from the Office of Financial Aids.

Deferred Payment Plans

Santa Clara provides a deferred payment plan which is administered through outside agencies. One-, two-, three-, and four-year contracts are available. Further information may be obtained at the Business Office.

Jobs

Employment during the school year is not encouraged, and students will not be permitted employment which intrudes on their required study hours; however, Santa Clara realizes that is necessary in some cases for students to hold part-time jobs. The University maintains a Placement Bureau on campus to assist students in securing part-time work.

Students who receive financial aid are expected to work during summer vacation. From their summer earnings men are expected to contribute at least $500, women $400, to meeting their costs at Santa Clara.

Important Financial Aid Deadlines

November 15..... Deadline for applying for aid beginning in winter quarter.
November 22..... Deadline for applying for California State Scholarships.
December 7.....S.A.T. exam taken no later than this test date for California State Scholarships.

December 16..... Deadline for applying for the California College Opportunity Grant.
January 15 ..... Deadline for Scholarship consideration.
February 15..... Deadline for applying for aid beginning in spring quarter.
April 15..... Deadline for applying for B.E.O.G.—however, you should apply as early as possible.
May 1 ..... Deadline for applying for financial aid *renewal.*
June 1 ..... Deadline for Freshmen applying for aid.
July 1..... Deadline for Transfer students applying for aid.

NOTE: All Guaranteed/Federally Insured Student Loan Applications must be in the Financial Aid Office completed not later than three weeks prior to a registration period. Applications received later than this will be processed as time allows, normally after registration.

Information on the availability of Summer School Aid will be available from the Financial Aid Office *after* April 15th.

STORAGE OF PERSONAL PROPERTY

The University of Santa Clara is not responsible for students' personal property located in dormitory rooms or storage areas on campus.

Loss from fire, dishonesty, destruction, or disappearance is strictly a personal matter. It is the individual's responsibility to secure his or her own insurance coverage.

Academic Regulations

COURSE REQUIREMENTS

The undergraduate program is scheduled on a basis of three eleven-week terms per academic year of nine months. The eleventh week will be devoted to examinations. During the freshman and sophomore years the student schedules three or four courses per term and during his junior and senior years, he schedules three courses per term.

Classes are normally scheduled on Monday, Tuesday, Thursday, and Friday. The Santa Clara plan of academic performance envisions considerable independent study by the students. Wednesday will normally be kept free of laboratories, examinations, and seminars, to provide uninterrupted study periods.

Lower-division courses (numebered 1-99) are counted as four (4) quarter-units each, and upper-division courses (numbered 100-199) as five (5) quarter-units each, except those courses in Military Science and Music as indicated in the course description of this bulletin and the Schedule of Classes.

A freshman or sophomore may not carry less than twelve (12) quarter-units per term without the written approval of his Dean, nor may a junior or senior carry less than ten (10) quarter-units per term without the written approval of his Dean.

No student may carry more than seventeen (17) quarter-units per term unless he has a 3.3. grade-point average and has written authorization to do so from the Dean. The only exception to this regulation is for juniors or seniors who, with written authorization from the Dean, take a fourth course for enrichment purposes. Such a course is graded on a special passed/not-passed basis (recorded as + or —) and does not fulfill graduation requirements.

Any student who registers for more than seventeen (17) quarter-units without written authorization from the Dean will not receive credit for the additional course(s).

A junior or senior who has declared a major may take on a passed/not-passed basis (recorded as P or NP) those courses certified by his departmental chairman to be outside his major. This option must be elected at registration and may not be changed after the close of late registration. Such courses, if passed, will fulfill graduation requirements. (P is equivalent to A, B. C+ or C; NP is equivalent to a D or F.) They are not used in calculating the student's grade-point average.

A sophomore may take an upper-division course if approved by his Dean and provided his program does not exceed seventeen (17) quarter-units.

Many of the above regulations are not applicable to the School of Engineering. See Graduation Requirements, School of Engineering.

STUDENT CLASSIFICATION

Students are classified by the number of quarter-units successfully completed (recorded as A, B, C+, C, D, or P).

Freshman	0-44 quarter-units	Junior	89-127
Sophomore	45-88	Senior	128-

(A student who completes his third year with only 127 quarter-units will require more than three (3) terms to satisfy the graduation requirement of 175 quarter-units.

A part-time student is defined as a freshman or sophomore registered for less than twelve (12) quarter-units, or a junior or senior registered for less than ten (10) quarter-units. A limited number of undergraduate degree programs are open to part-time students. Admission to these programs is by special action of the school or college Committee on Academic Status. Part-time students are not eligible for financial aid.

GRADING SYSTEM

A student's grade of scholarship is given according to the following marks:

A	Excellent	F	Failure
B	Good	I	Incomplete
C+	Above Average	W	Withdrawal
C	Satisfactory	P (or +)	Passed
D	Inferior	NP (or -)	Not Passed

A student must earn a C average in all graded work undertaken and, in addition a C average in the courses of his major in order to qualify for the Bachelor's degree. To determine a numberical average, 4 grade points per quarter-unit are assigned for each A, 3 for a B, 2.5 for a C+, 2 for a C, 1 for a D, and 0 for an F. To arrive at the grade-point average, the total earned grade points are divided by the number of quarter-units which have been undertaken. A C average is 2.0.

REPETITION OF COURSES

A student may, with permission, repeat a course in which a grade of D or F was received on the first attempt. He should use the letter R in registering for the course

again. All grades, whether repeated or not, will be used in computing the student's performance.

WITHDRAWING FROM COURSES

Students may withdraw from courses without penalty up to one week before the beginning of final examinations. Dropping a course without a formal withdrawal will result in a grade of F.

ENTERING NEW COURSES

Students may enter a course for the first time only during the first week of classes of the term.

TRANSFER CREDIT

Courses taken at other institutions after a student has enrolled at Santa Clara will not be considered for transfer credit unless approved in advance by the appropriate academic Dean at Santa Clara. This also applies to courses taken while on leave from Santa Clara.

Students who transfer a specific course to the University from another institution will not accumulate credit for these courses unless they are accumulated in sufficient quantity to total the quarter unit equivalent of a term course.

The student's grade-point average is computed only on work done at Santa Clara. Collegiate work at another institution with a grade of C or better may be transferred to Santa Clara and counted in fulfillment of graduation requirements, but it will not be counted in determining the student's grade-point average and rank in class. The transfer value of pass-fail courses at another institution will be determined individually in each case. A student attending Summer Session should not expect to receive more than ten quarter units credit for work taken during a regular Summer Session either on this campus or at some other institution.

INCOMPLETES

A student's work may be reported incomplete if, due to unavoidable circumstances, some essential portion of his work in the course remains unfinished after the final examination. An Incomplete (I) becomes a Failure (F) unless the unfinished work is completed to the satisfaction of the instructor and proper notice filed with the Registrar within four weeks from the beginning of the next scheduled term, not including the summer session. Exceptions may be made by the Academic Vice President, in individual cases, on the recommendation of the appropriate academic dean. These exceptions must be approved by the Academic Vice President prior to the end of the four-week period just noted.

ACADEMIC PROBATION, DISQUALIFICATION REINSTATEMENT

Probation and Disqualification

Students whose academic performance does not meet specified norms, in terms either of units completed or of grades achieved, will be placed on probation or disqualified from further attendance at the University. These norms are:

	Probation			*Disqualification*		
	*Quarter Units Completed**		*Grade Points Below C*	*Quarter Units Completed**		*Grade Points Below C*
By end of 3rd term	Less than 36 q.u.	OR	Down 7-15 g.p.	Less than 28 q.u.	OR	Down 16 g.p.
By end of 6th term	Less than 76 q.u.	OR	Down 7-15 g.p.	Less than 64 q.u.	OR	Down 16 g.p.
By end of 9th term	Less than 113 q.u.	OR	Down 7-12 g.p.	Less than 100 q.u.	OR	Down 13 g.p.
By end of 12th term	Less than 160 q.u.	OR	Down 5-12 g.p.	Less than 150 q.u.	OR	Down 13 g.p.

*Not counting courses with grades of: F, NP, I, W, +, —
Part-time students are not subject to these norms.

Reinstatement

A disqualified student may request readmission to the University, but reinstatement is rarely granted and then only by special action of the Dean of the School or College in which he was formally enrolled and the Committee on Academic Status.

Requests for reinstatement should be addressed to the Admissions Office and should be accompanied by a full account of the student's activities during the period of disqualification which the student judges to warrant reinstatement.

WRITTEN EXAMINATIONS

Written examinations are held at the middle and end of each term. A report of the student's progress is prepared by the Registrar's office and mailed to his home only at the end of the term. A letter grade is posted by instructors at mid-term for each freshman, but grades for other students are posted only in case of deficiency (grade of D or F or NP).

A student guilty of dishonesty in an examination will be given a failure for the course. In special cases, the administration may impose the penality of dismissal from the University.

LEAVE OF ABSENCE

Undergraduate students who do not register for one term must reapply for admission if they wish to register again at a later time unless, prior to their absence, they received a written notice of leave of absence from the appropriate academic Dean. A leave of absence will be granted only for a specified time and normally not beyond one year.

Students who wish to return to the University before the end of their leave must reapply for admission in the usual way through the Admissions Office.

WITHDRAWAL FROM THE UNIVERSITY

Students who wish to withdraw from the University must report to the Registrar for a withdrawal form and proper instructions. They will be advised that files of such students are only kept active for one year. Should they subsequently wish to return to the University, written notice must be given to the Registrar two weeks before the registration date set for the quarter in which they intend to resume their studies. Failure to give such notice will necessitate late registration to allow time for reviewing the records and preparing necessary materials.

Students who withdraw from the University after registering for any quarter will have their records marked accordingly, as well as notice of the time of such withdrawal.

If a student attends another university during the time of absence from Santa Clara, it is his responsibility to arrange for the transcript to be forwarded to the Registrar for proper evaluation and recording.

CHALLENGING COURSES

A course is said to be challenged when a student takes a special examination in the course for the purpose of obtaining credit for it. He may prepare for this procedure by directed independent study.

Any course in the catalog may be challengeed except those specifically identified in the catalog as exempted from challenge (indicated by the letters NCX) and those requiring laboratories, studio, or specialized group work.

To challenge a course, a student must have a 2.2 cumulative average and a 2.5 average in his major field. Freshmen and transfer students are not eligible to challenge a course until they have completed one term of work at Santa Clara. A student desiring to challenge a course should obtain a form from the Office of the Registrar on which he will identify the course as well as any course he has previously audited or challenged. He must then receive approval from an instructor in the department and the

Dean of his School. A fee of $10.00 will be charged for each course challenged. Only one course may be challenged per term.

Normally the examination for challenging courses will be given on the third Saturday of each term. The petition for challenging a course must be submitted at least two weeks before the examination date.

Grades will be issued for challenged courses in the same manner as those obtained through regular graded course work. Pass-fail challenges are not permitted. Courses successfully challenged will fulfill graduation requirements but will not count towards the forty required for graduation. Challenged courses may not be used in the performance of residence requirements. The department shall establish the level of performance to be obtained and any requirements in addition to an examination which will be three to four hours in duration.

AUDITING COURSES

Students may audit one course in addition to the three courses they take in the upper division, or the four courses taken in lower division work. A student may not enroll as a course auditor and then decide to take the final examination for credit. If he wishes credit for an audited course, he may challenge the course during the following term through the normal challenging procedure.

Students who are not full-time students pay $125.00 per course for auditing. A student may not audit more than three courses during his four years at Santa Clara.

ATTENDANCE

Students are required to attend all classes. Penalties for absences are left to the discretion of individual instructors.

CHANGING COURSES, MAJORS, SCHOOL OR COLLEGE

Certain administrative procedures for changing course registration, changing majors within a College or School, or changing from one School to another must be observed or the student will be incorrectly charged, to the possible detriment of his academic record. The necessary forms and procedures may be obtained from the Office of the Registrar. Students desiring to transfer from one College or School to another must, at the time of filing a petition for transfer, have an overall grade point average of 2.00.

A SECOND BACHELOR'S DEGREE

Ordinarily work toward a second bachelor's degree is discouraged by the University but complete changes of objective occasionally require attainment of such an additional degree. Applicants for admission to undergraduate study for a second bachelor's degree must indicate by their previous scholastic record a strong probability of academic success in this undertaking. Admission is subject to approval of the Dean of the School or College in which work is to be done. A minimum of forty-five quarter-units beyond the first bachelor's degree is required. Financial aid is normally not available to students seeking a second bachelor's degree.

RIGHTS RESERVED

The curriculum and regulations affecting students may be revised at any time at the discretion of the University administration.

GRADUATION—UNIVERSITY REQUIREMENTS

The general requirements for graduation from the University of Santa Clara can be summarized as follows:

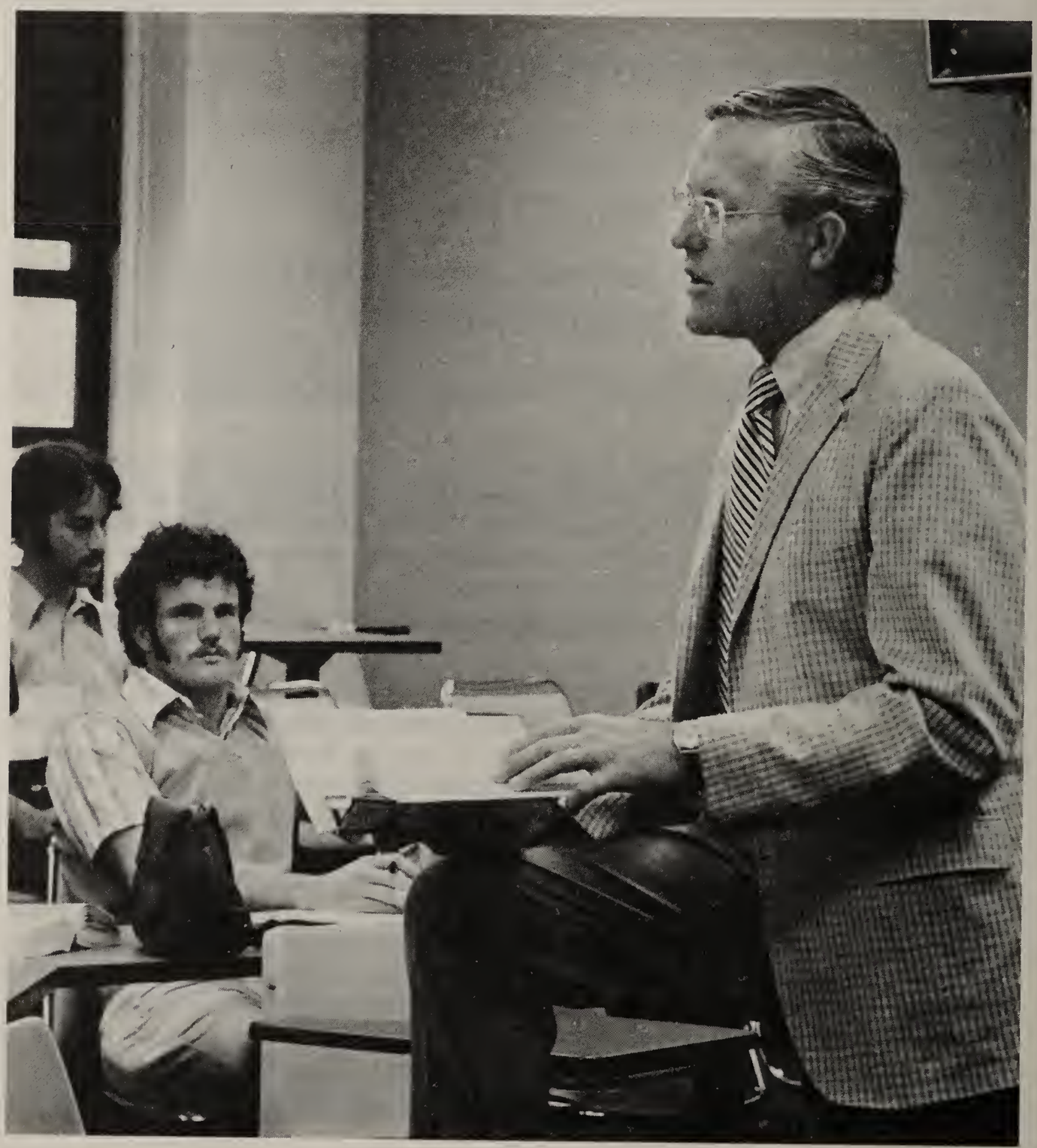
1. Twenty-two courses in the first two years and eighteen (of which twelve are upper division) in the second two years, totaling at least 175 quarter-units, are the minimum course requirements for a bachelor's degree in all schools and college of the University. Courses in which an F or NP (or + or —) was received are not counted in these totals.
2. Achieve an overall academic performance level of a C which is a 2.0 numerical average.
3. Obtain a C average in the courses of the major.
4. Complete the residence requirement of 45 units at Santa Clara in the Senior year. Students who have completed 45 units as Juniors at Santa Clara may, however, fulfill this requirement by offering 35 units in the Senior year.
5. In addition to requirements established by the separate colleges and schools of the University, each candidate for a bachelor's degree must complete a certain number of courses in Religious Studies. Students entering the University in the first year are required to complete three courses in Religious Studies, at least one of which must be completed after sophomore year (or during one of the two final years). Students entering the University in the second year must complete two courses, one of these during the final two years; those entering in third or fourth year, one course in either year.

FOR FURTHER GRADUATION REQUIREMENTS, PLEASE REFER TO THE DESCRIPTION FOR THE APPROPRIATE COLLEGE OR SCHOOL

GRADUATION HONORS

A candidate for an undergraduate degree who has a grade-point average of 3.40 graduates Cum Laude; one who has a grade point average of 3.65, Magna Cum Laude; one who has a grade point average of 3.85, Summa Cum Laude.

Honors will be based on all graded undergraduate courses attempted at the University of Santa Clara or elsewhere. Transfer students must complete at least two full years at the University to be eligible for honors, and honors will not be awarded superior to what would be merited by the student's record at the University.



Academic Programs

THE SANTA CLARA PLAN

The purpose of the Santa Clara Plan is to minimize the diffusion of each student's interest and concentration by limiting the number of courses taken at any one time, and so to maximize the opportunities for independent study.

Dividing the academic year from September to June into three eleven-week terms and restricting the course load to either three or four courses per term allows the student to concentrate more effectively on a limited number of subjects at any one time. Yet throughout the four years there is ample opportunity for the student to explore a wide range of interests relating either directly or indirectly to his major field of study.

HONORS PROGRAM

The Honors Program is designed to meet the University's responsibility to its superior students by allowing them to pursue an Honors curriculum while majoring in any field. Lower division study for Honors students is a combination of seminars, limited to about 15 students, and lecture courses which presuppose work beyond the usual high school level. In junior and senior years Honors students work intensively in their areas of specialization. Much of their upper division work will be in seminars and directed research. Various Pass-Fail options encourage better use of electives outside their major fields. Special counseling opportunities and registration privileges are available for Honors students which enable them to create the curricula best suited to their abilities, preferences and future professional needs.

Students are considered for admission to the Honors Program on the basis of their high school records, class rankings, Scholastic Aptitude and Achievement Test scores, letters of recommendation, expressed interest and, when possible, interviews with the Director of the Program and faculty members. A 3.50 high school grade point average and a 1350 SAT total score (including a 650 verbal score) are the ordinary requirements for acceptance into the Program. The number of freshmen admitted to the Honors Program is limited to forty each year. To remain in the Program, students must satisfy their instructors that they are doing work of Honors caliber as well as maintain a 3.0 cumulative grade point average.

Toward the end of their freshman year, Honors students who have demonstrated exceptional academic responsibility are designated Honors Scholars, are released from all University requirements, and are permitted to follow a personalized program of studies during their next three years. Honors Scholars are chosen and counseled by a committee made up of their Dean, Department Chairman, and the Director of the Honors Program.

The award "Honors at Entrance" which the University awards to high school students at high school commencement ceremonies does **not** constitute admission to the University Honors Program, nor is it related to the Honors Program in any other way.

PRE-MEDICAL PROGRAM

Admission to medical school is not dependent on any particular undergraduate concentration, nor is it guaranteed by graduation from Santa Clara. Programs which satisfy the requirements prescribed by the Council of Education of the American Medical Association are offered by most of the departments in the College of Science including Biology, Chemistry, and Physics as well as some of the departments in the College of Humanities. Although the curriculum may be arranged in such a way that the student may comply with the requirements for entrance to medical schools in three years, nevertheless, medical schools generally prefer that the student spend four years in preparation and include such cultural courses in his programs as will better fit him for the practice of medicine. The Pre-medical Advisor of the Biology Department, in conjunction with the student's own academic advisor, will assist him in preparing his program in the major of his choice. Prospective applicants for admission to medical schools are urged to study ADMISSION REQUIREMENTS OF AMERICAN MEDICAL COLLEGES INCLUDING CANADA which is published each year and is available from the Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Illinois 60201.

PRE-DENTAL PROGRAM

Pre-dental programs meeting all the requirements for entrance into dental schools are offered by most of the departments in the College of Science including Biology, Chemistry, and Physics as well as some of the departments in the College of Humanities. The Pre-dental Advisor of the Biology Department, in conjunction with the student's own academic advisor, will assist him in preparing his own program in the major of his choice. ADMISSION REQUIREMENTS OF AMERICAN DENTAL SCHOOLS is published each year and is available from the American Association of Dental Schools, 211 East Chicago Avenue, Chicago, Illinois 60611.

PRE-LEGAL PROGRAM

There is no one best preparation for the study of law. Admissions officers in the best law schools look to breadth of background and quality of work. All concerned with the law and its teaching, however, agree that the ability to write and to speak with clarity and precision is of paramount importance. A course in accounting is virtually essential. This can be said about other preparation: a broad foundation in the social sciences, coupled with a careful selection of courses in English, history, and speech, is most desirable. The precise selection of courses will vary with the major and with the different needs and aptitudes of the student.

PRE-TEACHING PROGRAM

Preparation for prospective teachers is offered by the Department of Education. The Department assists prospective teachers to plan their undergraduate programs so as to include courses that best prepare them for entering a credential program.

COLLEGE OF HUMANITIES

John H. Gray, S.J., Ph.D., *Dean*

The College of Humanities confers the degree of Bachelor of Arts in English, Fine Art, French, General Humanities, German, History, Italian, Music, Philosophy, Religious Studies, Spanish and Theatre Arts.

In addition to these departments, the College also has a Classics Department which does not have a major program. The Department of Education offers an undergraduate pre-teaching program for prospective teachers.

The Graduate School of the College of Humanities offers programs leading to the California State Teaching Credentials, and confers Master of Arts degrees in Education, English, and History. A full description of all graduate programs is given in the *Bulletin of the Graduate School of Humanities*.

GRADUATION REQUIREMENTS

The College of Humanities requires that for a Bachelor of Arts degree the candidate complete 175 quarter units; of these at least 60 must be earned in upper division courses taken during the junior and senior years.

In addition to the requirements of his major department, the student must complete the following general education requirements:

- 8 units of science or mathematics (may be filled by taking courses in biology, chemistry, physics, psychology as a natural science, engineering, physical anthropology, history or philosophy of science, accounting);
- 8 units of social science (anthropology, economics, geography, political science, psychology, or sociology);
- 12 units of English (EN 1, 2, 3, or equivalents);
- 12 units of a foreign language (or continuation of a foreign language studied in high school through course 22);
- 16 units in the humanities, outside the major department, selected from the general areas of history, literature, and philosophy;
- 4 units in the creative or performing arts;
- 4 units in the general area of ethnic studies (may be filled simultaneously with any other requirement).

Major Department Requirements. Each department sets the requirements for its majors, but with the following stipulation: no department may require its majors to take more than a total of 60 units, or less than 40 units of upper-division courses, in the department itself. With the approval of the Dean, departments may establish additional requirements outside the major department.

COLLEGE OF HUMANITIES
DEPARTMENT OF THE CLASSICS

George Sullwold, Jr., Ph.D., *Acting Chairman*

Associate Professors: George Sullwold, Walter Kropp, S.J.
Assistant Professor: Douglas Olcott

A student, after consultation with any member of the department faculty, may take any course for credit which suits his needs and preparation.

MAJOR: The Department of the Classics does not offer a major, but a student may take the Humanities Major and specialize in any one of four programs in The Classics: Latin, Greek, Latin and Greek, or Classical Studies. Twelve courses are necessary for any one of the programs.

Greek

1. ELEMENTARY GREEK I
For beginners. Reading in Attic Greek is combined throughout with the learning of forms, vocabulary, and syntax.

2. ELEMENTARY GREEK II
Continuation of 1.

21. INTERMEDIATE GREEK I
Xenophon and/or Plato. Prose Composition. Prerequisite: 2.

22. INTERMEDIATE GREEK II
Continuation of 21.

31. ART OF ANCIENT GREECE

61. CLASSICAL CIVILIZATION
See English 61.

65. GREEK MYTHOLOGY
See English 65.

100. HOMER I, Selections

101. HOMER II, Selections

110. CLASSICAL DRAMA
See English 110.

111. EURIPIDES I

112. EURIPIDES II

113. SOPHOCLES I

114. SOPHOCLES II

119. THUCYDIDES

120. HERODOTUS

121. HISTORY OF GREECE

123. CLASSICAL FICTION in English
The Greek Romances and Lucian, Petronius and Apuleius.

125. COMPOSITION AND SIGHT-READING I

126. COMPOSITION AND SIGHT-READING II

127. COMPOSITION AND SIGHT-READING III

130. PLATO

131. THE ART OF ANCIENT GREECE

140. AESCHYLUS

150. THE ORATORS

160. COMEDY OF ARISTOPHANES IN ENGLISH

170. LYRIC POETRY

171. PINDAR

180. NEW TESTAMENT, Selections

199. DIRECTED READING

Latin

Students who have entered Santa Clara with Latin credit should consult with a member of the department to determine at what stage they should begin here.

1. ELEMENTARY LATIN I
For beginners. Reading in Latin is combined throughout with the learning of forms, vocabulary, and syntax.

2. ELEMENTARY LATIN II
Continuation of 1.

21. INTERMEDIATE LATIN I
Grammar, syntax, readings.

22. INTERMEDIATE LATIN II
Selected readings from Latin authors.

100. CAESAR, Selections

105. CICERO, Selected Philosophical Dialogues

106. CICERO, Orations and Rhetoric

107. CICERO, Letters

110. TERENCE AND/OR PLAUTUS

115. MEDIEVAL LATIN

119. VERGIL, Eclogues and Georgics

120. VERGIL, Selections from the Aeneid

121. HISTORY OF ROME

125. COMPOSITION AND SIGHT-READING

126. COMPOSITION AND SIGHT-READING II

127. COMPOSITION AND SIGHT-READING III

140. HORACE, The Odes and Epodes

145. ROMAN SATIRE

150. OVID, Selections

155. ELEGIAC POETS

160. TACITUS

180. LUCRETIUS

199. DIRECTED READING

COLLEGE OF HUMANITIES
DEPARTMENT OF EDUCATION

Kenneth E. Blaker, Ph.D., *Chairman*

Professor: Gerald E. McDonald
Associate Professors: Louis I. Bannan, S.J., Kenneth E. Blaker, William W. Yabroff
Assistant Professors: Mary Anne Smith, Charles D. Swenson, Jo Ann Vasquez
Acting Assistant Professor: Joyce A. Gerard

Pre-Teaching Advisement

Undergraduate students who wish to enter the teaching profession are urged to attend the orientation lectures and the seminars provided by the Department of Education. Several academic departments in the Colleges of Humanities and Sciences have designed curricula for prospective teachers. Students who aspire to teaching are encouraged to seek advisement from their major departments and from the Department of Education during their undergraduate studies in order to prepare themselves for studies leading to a teaching credential.

The California Teacher Preparation and Licensing Law of 1970, commonly referred to as the Ryan Act, is in the process of being implemented. Undergraduate students seeking teaching credentials will be affected in various ways; consequently they are strongly advised to consult with the Directory of Teacher Education regarding their undergraduate studies.

Teaching Credential Program

The University of Santa Clara is accredited by the California State Board of Education to recommend qualified candidates for a credential to teach in public schools. Persons seeking this credential must first be admitted to the *Teacher Credential Program.* An appropriate undergraduate degree, plus a postgraduate year of studies is required to be fully credentialed, but a *preliminary* teaching credential is obtainable upon completing the *Teacher Credential Program* during the Senior year.

In order to obtain the *preliminary* teaching credential, students must begin planning their program of studies during their Freshman year, although formal application for this program should be made during the Junior year.

A *Life* (permanent) credential is earned upon completion of a year's study beyond the baccalaureate degree. This must be completed within five years of first employment of the certified employee.

The minimum requirements for the Single-Subject and Multi-Subject Credentials are as follows:

1) A baccalaureate degree or higher degree, except in professional education, from an approved institution.
2) An approved program of professional preparation.
3) Passage of a subject-matter examination, *or* holding a baccalaureate degree when the subject matter of the degree is the same as one of the subject matter examination categories.
4) Demonstration of a knowledge of the various methodologies of teaching reading by successful completion of an approved program of study (not to exceed ten quarter units) or passage of an approved reading examination.
5) One semester unit in health education.

I. Single-Subject Credential Program

Under the Ryan Act, there is no longer a Secondary Credential; in its place is the "Single-Subject Credential" which will allow its holder to teach only in a specific subject area. The law has specified 14 such areas: 1) English, 2) Physical Science, 3) Mathematics, 4) Social Science, 5) Industrial Arts, 6) Physical Education, 7) Business, 8) Music, 9) Art, 10) Home Economics, 11) Foreign Languages, 12) Life (natural) Science, 13) History, 14) Government.

II. Multi-Subject Credential Program

Under the Ryan Act, there is no longer an Elementary Credential; in its place is the "Multi-Subject Credential" which qualifies the holder to teach any subjects in a self-contained classroom from the Kindergarten through 12th Grade. To fulfill academic requirements for this credential, undergraduates can be declared humanities majors. A pre-designed program includes a minimum of 126 quarter units, with a minimum of 32 quarter units taken in *each* of the following areas: 1) English and communication studies, 2) social

sciences, 3) humanities and fine arts, including foreign languages, 4) mathematics and the physical and life sciences. Students who do not wish to become humanities majors, but wish to obtain a Multi-Subject Credential, will be required to take the Commons Examination which will consist of subject matter in the four categories listed above. In addition to professional education courses, students will be required to accomplish student teaching, and a knowledge of teaching methodology in reading must be demonstrated, either through completing a course or passing an examination.

A student who wishes to qualify for a Multi-Subject credential and follow another major, may do so by meeting the course requirements for the humanities major, in addition to his major course requirements.

Note that the requirements will be the same as for a declared humanities major, i.e., 32 quarter units taken in (1) English and communications, (2) social sciences, (3) humanities and fine arts, including foreign languages and (4) mathematics and the physical and life sciences.

When the student completes the above requirements, the student should seek verification of this fulfillment from the Director of Humanities Majors (Elementary Education). By completing the above requirements, the student will be exempt from taking the Commons Examination.

Admission requirements for the credential program are as follows:

1. Academic achievement: the candidate must have an overall grade point average of 2.75 and a 3.0 in the major. The candidate must possess an acceptable major, that is, one which the University of Santa Clara is approved to recommend for a credential.
2. Mental, emotional and physical fitness.
3. A positive attitude toward the teaching profession and its responsibilities.
4. A demonstrated competence in reading, writing, and speaking English as attested to by coursework or at least two full-time faculty members.
5. A written statement confirming absence of criminal conviction that would preclude the issuance of a credential.
6. Written recommendations: three letters of recommendation from any of the following:

   University of Santa Clara professors from the student's major field, former employers, professional persons, teacher in elementary or secondary schools under whom the student has completed practicum work.
7. Interviews: with the Director of Teacher Education and another full-time faculty member of the Education Department.
8. Verification of successful practicum work and/or experience with children or youth groups.

Final Deadline for admission: May 1, for Fall Quarter entry.

Since the Teacher Education Program is limited in enrollment, accepted candidates must reserve a place in the program by depositing $50 before June 1. This nonrefundable deposit will be applied to the candidate's tuition.

99. PRACTICUM IN EDUCATION
Opportunity for working as teacher-aides. Includes discussion seminars and directed readings. Permission of instructor required.

108. HISTORY OF EDUCATION
The historical development and growth of American public schools, elementary and secondary. The influence of leading educators and major educational trends are considered.

112. EDUCATION IN AN ERA OF CHANGE
An analysis of the status and direction of American education in the middle decades of the twentieth century. Stress is placed upon examining the nature and conditions of current school conflict and recent criticisms of the public school system.

119. PSYCHOLOGY OF EDUCATION
Introduction to theories of learning and their implementation in the classroom. The construction and uses of criterion-referenced objectives and their effects on learning. Testing and measurement concepts as they apply to classroom evaluation. Some problems confronting academically and socially disadvantaged students and techniques for alleviating these.

120. DIRECTED TEACHING I (Fall quarter)-(8)
This is the first in a student teaching sequence of three courses which is designed to introduce the Teacher Credential candidate to curriculum and instruction in the public schools at all levels. Morning practicums are combined with weekly seminars in which students have an opportunity to discuss problems and issues in public education. Prerequisite: Admission to the Teacher Credential Program.

121. DIRECTED TEACHING II (Winter Quarter)-(8)
The second course in the directed teaching sequence is designed for the Teacher Credential candidate who will engage in teaching under the supervision of an experienced resident teaching in the public schools. Students are assigned to specific teaching position in the morning while taking coursework in the afternoon, thereby facilitating the inter-relating of theory and practice. Prerequisite: Admission to the Teacher Credential Program and completion of ED 120.

122. DIRECTED TEACHING III (Spring Quarter)-(8)
The last course in the directed teaching sequence is designed as a continuation of ED 121. Students continue their student teaching assignments until the completion of the public school year while taking coursework in the afternoon. Prerequisite: Admission to the Teacher Credential Program and completion of ED 120 and 121.

134. CURRICULUM AND INSTRUCTION IN ELEMENTARY SCHOOLS: READING AND LANGUAGE ARTS
Provides an overall view of content taught in elementary school language arts. Emphasis is placed on instructional strategies and the books and materials used in the elementary classroom. Prerequisite: Admission to the Teacher Credential Program.

150. FOUNDATIONS OF EDUCATION I (4)
The first of three courses stressing the theoretical bases of education. Designed to develop a carefully considered point of view toward teaching and learning. Value questions which relate to psychology and curriculum are considered. Prerequisite: Admission to the Teacher Credential Program.

151. FOUNDATIONS OF EDUCATION II (6)
This second of three courses focuses on curriculum design, implementation, and evaluation at the elementary and secondary levels. Students are given an opportunity to pursue their special interests related to such problems as the core curriculum, psychology of curriculum, subject- vs. student-centered approaches, and recent trends in the field. Prerequisite: Admission to the Teacher Credential Program.

152. FOUNDATIONS OF EDUCATION III (5)
The third of the three course sequence concentrates on the applications of psychology to the educational process. Consideration of standardized and teacher constructed tests is also included. Prerequisite: Admission to the Teacher Credential Program.

163. INTRODUCTION TO TEACHING IN A MULTI-CULTURAL SOCIETY
Introduces the student to public school curriculum and instruction in a multicultural setting. Students are engaged in directed practicums while participating in seminar sessions which focus on cultural learning styles, bilingual/bicultural programs; components of multi-cultural curriculums, and other field-related problems and issues.

84. READING IN THE ELEMENTARY SCHOOL
A survey and study of approaches, methods, and practices in reading instruction. Prerequisite (for undergraduate only): Admission to the Teaching Credential Program.

199. DIRECTED RESEARCH IN EDUCATION
Opportunity for independent research and experience in education. Experience in elementary and/or secondary classrooms. Permission of the instructor is required.

COLLEGE OF HUMANITIES
DEPARTMENT OF ENGLISH

Francis X. Duggan, Ph.D., *Chairman*

Professors: James P. Degnan, Francis X. Duggan
Associate Professors: John H. Gray, S.J., Christiaan Lievestro, Charles T. Phipps, S.J., George J. Sullwold
Assistant Professors: Diane D. Dreher, Edward D. Gross, Elizabeth J. Moran, Felton G. O'Toole, S.J., Theodore Rynes, S.J., Richard M. Schmidt, Joseph Subbiondo, Frederick Tollini, S.J.
*Lecturers:*Mary Ann Aschauer, Albert DiPippo, William J. Rewak, S.J., Carol Rossi, Sr. Victoria Seidel, R.S.C.J., James Torrens, S.J., Sr. Ann Wittman, S.C.S.C.

Bachelor of Arts

The English major program consists of four lower division English courses, in addition to the composition courses required by the College of Humanities, and eight upper division English courses. Students are advised to choose their courses from within one of the following programs.

Program A: English Literature

Program A is the standard English Major designed for students who are planning to continue their study beyond the B.A. degree. It is also a good, solid program for the general student.

Lower Division: 4 courses
Either of the following sequences:
A. 46, 47, 48
B. 61, 62, 63
1 course from 36, 37, 38, 65, 66, or from the other sequence (A or B above).
Upper Division: 8 courses
3 period courses from 120, 121, 122, 155, 156, 157
1 Shakespeare: 116, 117, 118
1 Chaucer, 152, 153
3 Electives in U. D. English courses
Strongly recommended: one from 104, 105, 106.

Program B: General English

Program B is designed for the student who is not planning to do graduate work in English. This program is, however, suitable for those planning to obtain teaching credentials; to do further study in journalism, language and linguistics; to enter law school. The heart of this program is a three-course sequence in some special field.

Lower Division: 4 courses

The same as for Program A.

Upper Division: 8 courses

1 author course: Shakespeare, Chaucer, Milton

3 related courses chosen from these nine groups:

a. Language and Linguistics: 100, 101, 102, 103.
b. Writing: 171, 172, 173, 174, 175, 176, 177.
c. Fiction: 124, 125, 126, 127.
d. Drama: 110, 111, 112, 113, 114, 115, 116, 117, 118, 119.
e. American: 119, 126, 130, 131, 133, 149.
f. Medieval: 100, 152, 153, 155.
g. Renaissance: 116, 117, 118; 156, 157, 158.
h. Modern: 112, 115, 121, 122, 124, 125, 127, 160, 165, 181.
i. Criticism: 104, 105, 106.

4 Electives from U. D. English courses.

Program C: American Literature

Program C is designed for students with a special interest in their American heritage. This program is suitable for pre-law students, as well as the general student. A number of universities offer graduate programs in American Studies.

Lower Division: 4 courses

36, 37, 38.

1 Elective from L. D. English courses

Recommended: 46, 47, 48, 66

Electives in U.S. History, Political Science, Sociology, and Economics

Upper Division: 8 courses

130, 131, & two from 119, 126, 133, 149.

Any four from among the following: 120, 121, 122, 124, 125, 127, 156, 157, 158, 160, 165.

Recommended electives: courses in American History, Philosophy, Religious Studies, Political Science, Sociology, Economics.

Program D: Dramatic Literature

Through the cooperation of the Departments of English and Theatre Arts, a student may specialize in Dramatic Literature. The specialization consists of 12 courses in English and Theatre Arts (4 lower division, 8 upper division) of which at least 8 must be in dramatic literature.

Lower Division—Theatre Arts 9, English 25 and 28. At least one course elected from the following: Theatre Arts 9, 10; English 46, 47 48, 65, 66.

Upper Division—English 104; one course in Shakespeare; one of the following sequences in its entirety: A. English 110, Theatre Arts 111 and 112. B. English 113, Theatre Arts 114 and 115. Three electives from among upper division English courses and Theatre Arts 150 and 151, of which at least one must be in something other than dramatic literature.

To satisfy the general requirement in Humanities, the specialist in Dramatic Literature is expected to take English 61, 62, 63.

The specialization in Dramatic Literature is recommended for those students who are primarily interested in drama and who intend to continue study in drama, dramatic literature, drama criticism, or journalism. This specialization is not recommended for students who intend to do graduate work in English Literature with a view to the degree of MA or Ph.D. The Dramatic Literature specialization is however suitable for the degree of MAT in English.

Program E: Comparative Literature

Program E is designed for the student whose interest in literature goes beyond English and American Literature. It is especially suitable for the student who studies abroad during his junior year and consequently has a bit of difficulty in completing Program A. Comparative Literature is excellent preparation for teaching and graduate study.

Lower Division: 4 courses
English 61, 62, 63, and 65 or 66.
Preparation for U. D. work in one or more foreign languages.
Suggested Electives: 25, 27, 46, 47, 48.

Upper Division: 8 courses
English 144 and 145
2 selected from English 104, 105, 106, 110, 111, 112, 127, 149, 181.
Recommended: 4 U.D. courses in the literature of a foreign language; 1 or 2 courses in a second foreign language.
Recommended English Electives: 116, 117, 118, 153, 155.
Courses in Linguistics do not fulfill the 8-course literature requirement.

Program F: Written Communication

Lower Division: 4 courses
2 from 71, 72, 73, 74.
2 from any one of 36, 37, 38; 46, 47, 48; 61, 62, 63.
Suggested electives: Any lower division English literature courses.

Upper Division: 8 courses
4 from 171, 172, 173, 174, 175, 176, 177, Theatre Arts 151.
4 upper division English courses, two of which must be in literature.

Honors Program

Students majoring in English may participate in the University Honors Program. The Department of English offers each year special sections of certain lower division

courses limited to Honors students. The Department also offers a specific Honors curriculum for its Honors students and permits them to begin in their sophomore year a series of upper division period courses (155, 156, 157, 120, 121, 122) in place of 46, 47, 48.

Teacher Credential with a Major in English

Candidates for a secondary teaching credential with a major in English should complete the following program:

1. All requirements for a Bachelor of Arts with a major in English.

   Lower Division—English 1, 2, 3 or English 41, 42. English 46 and 47. English 61, 62, and 63 may be substituted for 46 and 47. Recommended electives: English 48, 65, 66.

   Upper Division courses should include: One course in Shakespeare (116, 117, or 118) or one course in Chaucer (152 or 153). Three period courses of which one should concern American literature (130 or 131). One course in language and linguistics (101, 102, 103). One course in advanced writing (172, 174, 175, 176, 177).
2. During the fifth year at least two English courses are required. These courses may be the recommended courses in language and linguistics or in advanced writing. Any upper division course may be elected.
3. Education courses as specified by the Department of Education. Education 108, 111, 119 may be taken during the junior and senior years.

Teaching Minor in English

The teaching minor generally consists of thirty quarter units of English including both upper and lower division. The English Department strongly recommends four upper division courses for the minor in English.

Lower Division—English 1, 2, and 3, or 41, and 42. Suggested electives: English 25, 27, 28, 30.

Upper Division—English 101, 102, or 103. For the teaching credential one of the following is required: English 174 or 175. Electives should be chosen to supplement the lower division. Ideally the student should have at least one course in Shakespeare and one course in American literature (119, 126, 130, 131).

1. COMPOSITION AND RHETORIC I
Practice in the fundamentals of expository and critical writing. This course is designed to furnish the student the reading and writing skills necessary for college work. Readings in selected modern essays.

2. COMPOSITION AND RHETORIC II
Continuation of 1. Practice in expository and critical writing. English 2 or 3 will satisfy the requirement for those students who need only two English courses.

3. COMPOSITION AND LITERATURE
Practice in expository and critical writing with emphasis on research techniques and the use of the library. Classes will be arranged for students with special interests.

4. BASIC COMPOSITION
A course in composition giving special attention to problems encountered by non-native speakers of English who have progressed beyond English 11 and 12 and for some native Americans of ethnic minorities. Substitutes for English 1.

5. BASIC COMPOSITION
Continuation of English 4. Substitutes for English 2.

6. INTRODUCTION TO DRAMA
See Theatre Arts 9.

11. ENGLISH AS A SECOND LANGUAGE
A course in English for non-native speakers, in substitution for English 1.

12. ENGLISH AS A SECOND LANGUAGE
Continuation of 11. Substitutes for English 2.

13. ENGLISH AS A SECOND LANGUAGE
Continuation of English 12. Substitutes for English 3.

23. SHORT STORY
Selected readings in British and American short stories.

24. WORLD DRAMA
Selected plays of the western tradition, from ancient Greece up to the present century.

25. CONTEMPORARY DRAMA
Selected readings in contemporary English, American, and Continental drama.

26. ENGLISH CLASSICS
Selected readings in English literature.

27. MODERN NOVEL
The changing concept of the novel during the twentieth century.

28. SHAKESPEARE
Readings in the major tragedies, comedies, and chronicle plays.

30. AMERICAN CLASSICS
Selected readings in American literature for non-English majors.

36. SURVEY OF AMERICAN LITERATURE I
Readings in the history of American literature from Colonial times to the early nineteenth century.

37. SURVEY OF AMERICAN LITERATURE II
Readings in the history of American literature in the nineteenth century.

38. SURVEY OF AMERICAN LITERATURE III
Readings in the history of American literature in the twentieth century.

41. CRITICAL COMPOSITION I
Composition on literary topics for freshmen Honors students and English majors. Substitutes for English 1.

42. CRITICAL COMPOSITION II
Continuation of English 41. Substitutes for English 2.

43. POETRY
Introductory study of English lyric and short narrative poetry. For freshman English majors, a substitute for English 3.

46. SURVEY OF ENGLISH LITERATURE I
English literature from the beginnings to 1660.

47. SURVEY OF ENGLISH LITERATURE II
English literature from 1660 to 1832.

48. SURVEY OF ENGLISH LITERATURE III
English literature from 1832 to the present.

49. AFRO-AMERICAN LITERATURE
Satisfies Ethnic Studies requirement.

61. SURVEY OF EUROPEAN LITERATURE I
Greek and Roman literature in translation. Recommended for English majors.

62. SURVEY OF EUROPEAN LITERATURE II
Continental European literature in translation, from St. Augustine to Montaigne.

63. SURVEY OF EUROPEAN LITERATURE III
Continental European literature in translation, from Descartes to the rise of literary realism.

65. MYTHOLOGY
A study of classical mythology, which considers literary, psychological and anthropological implications. Recommended elective for English majors.

66. FOLKLORE
A study of traditional customs, beliefs, speech-forms, and narratives, with emphasis on the function of such traditions in literature and in contemporary life. Recommended elective for English majors. Satisfies Ethnic Studies requirement.

71. CREATIVE WRITING
Poetry and fiction. Practice in writing and editing. Workshop discussions.

72. EXPOSITORY WRITING
Practice in writing arguments, editorials, explanations and directions. Recommended for students interested in journalism.

73. WRITING AND RESEARCH
Methods of gathering, organizing, and presenting material available in books and articles. This course may be substituted for English 3 by Humanities students.

74. JOURNALISM
Writing for newspapers and magazines.

100. OLD ENGLISH
The morphology and syntax of Old English in selected readings in Old English texts. Alternate years; offered 1973.

101. LINGUISTICS
General survey of the science of linguistics: phonology, morphology, syntax, grammar, and usage.

102. MODERN GRAMMAR
Analysis of the basic problems of describing grammatical structure: traditional, structural, and transformational-generative grammars.

103. HISTORY OF THE ENGLISH LANGUAGE
An introduction to the study of the English Language: its origin, structure, and development; the growth of vocabulary; syntactic change; usage levels; and elementary phonetics.

104. CRITICISM AND DRAMA
Classical, Neo-classical and modern theories of drama. Readings in the important critics and a study of selected dramas.

105. CRITICISM AND POETRY
Romantic and modern theories of poetry. Readings in the important critics and study of selected dramas.

106. CRITICISM AND FICTION
A review of the theories of fiction with special emphasis on modern criticism. Readings in the important critics and a study of selected works of prose fiction.

110. CLASSICAL DRAMA
A study of selected Greek and Roman plays in translation.

111. CONTINENTAL DRAMA
See Theatre Arts 111.

112. MODERN DRAMA
See Theatre Arts 112.

113. ENGLISH DRAMA I
The history of the drama in England from the beginning to 1660. Emphasis on Elizabethan and Jacobean dramas.

114. ENGLISH DRAMA II
See Theatre Arts 114.

115. ENGLISH DRAMA III
See Theatre Arts 115.

116. SHAKESPEARE'S TRAGEDIES

117. SHAKESPEARE'S COMEDIES

118. SHAKESPEARE'S HISTORIES AND SONNETS

119. AMERICAN DRAMA
See Theatre Arts 119.

120. NEO-CLASSICAL PERIOD
Non-dramatic literature of England from 1660 to 1798. Alternate years; offered 1972.

121. ROMANTIC PERIOD
Non-dramatic literature of England from 1798 to 1832. Alternate years; offered 1973.

122. VICTORIAN PERIOD
Non-dramatic literature of England from 1832 to 1900. Alternate years; offered 1973.

124. ENGLISH NOVEL I
The English novel during the 18th Century.

125. ENGLISH NOVEL II
The English novel during the 19th Century.

126. THE AMERICAN NOVEL
A study of selected major American novels.

127. MODERN NOVEL
Readings of selected major works of modern English, American and Continental novelists.

130. STUDIES IN AMERICAN LITERATURE I
An intensive study of selected authors, trends, and literary problems in American literature during the seventeenth, eighteenth, and nineteenth centuries.

131. STUDIES IN AMERICAN LITERATURE II
An intensive study of selected authors, trends, and literary problems in American literature from the late nineteenth-century to the present.

140. HONORS SEMINAR
A seminar in special topics in literature, for students in the Honors Program.

144. COMPARATIVE LITERATURE I
A study of classical forms, themes, and stylistic devices and their specific influence and effect on English literature. Alternate years.

145. COMPARATIVE LITERATURE II
A study of the major forms and themes of modern Continental literature and their influence on English literature.

149. AFRO-AMERICAN LITERATURE
Fulfills Ethnic Studies requirement. May be elected as an English major elective.

152. CHAUCER I
A study in Middle English of Chaucer's *Canterbury Tales*, with emphasis upon the language, sources, and genres of the tales.

153. CHAUCER II
A study in Middle English of Chaucer's *Troilus and Criseyde*, with emphasis upon its language and its antecedents in Western European literature (to be read in translation).

155. MEDIEVAL PERIOD
A study in translation of the major movements in English literature from the Norman Conquest to 1485.

156. RENAISSANCE
Non-dramatic literature of England from 1485 to 1603.

157. SEVENTEENTH CENTURY
Non-dramatic literature of England from 1603 to 1660.

158. MILTON
The major works, with emphasis on *Paradise Lost*.

160. MODERN ENGLISH LITERATURE
The non-dramatic literature of England in the early and middle 20th century.

165. CONTEMPORARY LITERATURE
Contemporary British and American literature.

171. FICTION WRITING
A laboratory course designed to give the student instruction and direction in writing.

172. NON-FICTION WRITING
A laboratory course designed to give the student personal instruction and guidance in writing non-fiction.

173. POETRY WRITING
A laboratory course designed to give the student personal instruction and guidance in writing.

174. ADVANCED COMPOSITION
A course designed primarily for those students who plan to obtain a teaching credential. Practice in writing and editing.

175. ADVANCED WRITING I
A course of seminars and tutorials for pre-professional and other students seriously interested in improving their ability to write exposition and argumentation. Restricted to students in their senior year. Enrollment by permission of the instructor.

176. ADVANCED WRITING II
Continuation of English 175.

177. ADVANCED WRITING III
Continuation of English 176.

181. CELTIC RENAISSANCE
Irish literature in English of the late 19th and the 20th centuries.

198. SENIOR SEMINAR
A seminar for senior English majors in special topics in English or American literature. Enrollment by invitation only.

199. DIRECTED READING
Under special circumstances a student may request a professor to give him a course in directed reading with the chairman's permission. Under no circumstances may directed reading be taken in a subject area in which a course is currently available to the student.

COLLEGE OF HUMANITIES
DEPARTMENT OF THE FINE ARTS

Gerald P. Sullivan, S.J., M.A., *Acting Chairman*

Assistant Professors: Paul Kos, Gerald P. Sullivan, S.J., Irvin S. Tepper
Lecturers: Brigid Barton, Virginia Jansen, Keith Walker

The Fine Arts Department offers a major in the Fine Arts with an emphasis in either Studio Art or Art History. This program leads to a B.A. in Fine Arts.

A student emphasizing either Studio Art or Art History must complete 12 courses in the Department with an average grade of C. Subject to the Chairman's review, the following are the major requirements:

Four courses must be lower-division (numbered below 100). For a student emphasizing Studio Art, one of these lower-division courses must be one of the Introduction to Art series (71, 72, or 73). For a student emphasizing Art History, one of the lower-division courses must be a Basic Studio Course.

For a student emphasizing Studio Art, of the eight upper-division courses, six must be Studio courses: two must be Art History courses including the History of Modern Art (either 183, 184, or 185). For a student emphasizing Art History, of the eight upper-division courses, six must be Art History courses; two must be Studio courses.

Studio majors will undergo a faculty review of their work at the end of their Sophomore year. The studios are open to the students every day until 10:30 p.m., and students are encouraged to work in the studios whenever class is not in session. A lab fee may be required for all studio courses to cover the cost of materials.

In addition to the faculty and facilities of the Fine Arts Department, the University provides the programs of the de Saisset Art Gallery on campus. The many galleries and museums in the Bay Area are readily accessible to the students of the University.

10. BASIC PHOTOGRAPHY
Introduction to photography as a creative art form. Includes study and practice of various techniques and equipment. Extensive work in the darkroom is required but the emphasis is on creative expression.

21, 22, 23. BASIC FILM MAKING
Introduction to the theory and practice of film making as a creative form of expression. Course covers the production techniques of film as well as the history of film. The objective of the course in some cases will be to produce a finished film in either 8 or 16 mm, but in every case, to achieve an awareness of the history and possibilities of film as an art form.

26, 27, 28. BASIC VIDEO
An introduction to America's first truly indigenous art form. Emphasis is on actual production of video art using portable and studio equipment.

31, 32. BASIC DRAWING
Introduction to various drawing media and techniques as well as to the problems of self-expression involved in classical and contemporary drawing as an art form.

33. DRAWING MATERIALS AND 2-D DESIGN
A continuation of basic drawing skills with emphasis on exploration of a wide range of materials and techniques. Intensive involvement in exercises and projects to expand imaginative abilities. No prerequisites.

41, 42, 43. BASIC PAINTING

Introduction to the basic skills and concepts requisite for self-expression in oils and acrylics with an emphasis on color and composition as used for creation in two dimensional art forms.

51, 52, 53. BASIC CERAMICS/SCULPTURE

Introduction to three dimensional problems, materials, and techniques, beginning with clay and working towards the integration of other materials, i.e., plastic, wood, found objects.

60. PRINTMAKING

61. PRINTMAKING

Introduction to the art of printmaking, using the techniques of woodcut, linocut, and collograph, etc., to familiarize the student with problems of form and expression peculiar to the graphic arts.

61. BASIC SILKSCREEN

The techniques and concepts requisite for making silkscreened prints as an art form.

64. BASIC LITHOGRAPHY

Introduction to the techniques and concepts requisite for lithography (prints from a stone) as an art form.

67. BASIC ETCHING

An intaglio printing technique on metal plates through a creative process of drawing, etching with acids, and printing. Imaginative use of the age-old form is stressed.

71. INTRODUCTION TO ART: SURVEY

A study of major art works from classical times to the present as a means of introducing the student to art, art history, and art appreciation.

72. INTRODUCTION TO ART: RENAISSANCE THROUGH BAROQUE

A survey of the painting, sculpture, and architecture of the period from the Renaissance through the Baroque in both the South and North of Europe. Special emphasis on Leonardo da Vinci, Michelangelo, Bernini, Rembrandt, and Rubens. No prerequisites.

73. INTRODUCTION TO ART: ROCOCO THROUGH CONTEMPORARY

A survey of painting, sculpture, and architecture from the Eighteenth Century to the present, with special emphasis upon the art of Watteau, David, Courvet, Picasso, and Dali. No prerequisites.

101, 102, 103. ADVANCED PHOTOGRAPHY

Study of photography as creative, individual expression in a number of contemporary forms such as color photography, multiple images, holograms and 3-D. Extensive studio work required plus readings in the nature of the photographic image and its history.

121, 122, 123. CREATIVE FILM MAKING

An exploration of the theory and practice of contemporary film making and the technological possibilities of low-budget one-man productions. Each student must complete a film in 8 or 16 mm. Prerequisites: 21, 22 or 23.

126. VIDEO AS AN ART FORM

A study of the transition from film to television to video art, especially as used in conceptual art. Emphasis will be placed on the actual production of videotapes. Prerequisite: Basic Video.

126, 127, 128. VIDEO AS AN ART FORM

Continuation of the basic course with emphasis on personal approach and idea orientation. Prerequisite: Basic Video.

131. LIFE DRAWING

Drawing from life in various media stressing not only the techniques of composition, perspective, some knowledge of anatomy, etc., but also the possibilities of creative drawing. Prerequisite: 31, 32 or 33

141. ADVANCED PAINTING

Involves working in the various styles and techniques of paintings to find personal styles and manner of self-expression. Prerequisite: 41, 42, or 43.

151, 152, 153. ADVANCED SCULPTURE/CERAMICS

A continuation of the basic course with emphasis on personal approach and idea orientation. Prerequisites: 51, 52, or 53.

161, 162, 163. ADVANCED SILKSCREEN

A continuation of the basic course with emphasis on personal style and self-expression. Prerequisites: Basic Drawing and any Basic Printing course.

164, 165, 166. ADVANCED LITHOGRAPHY

A continuation of the basic course with emphasis on personal style and self-expression. Prerequisites: Basic Drawing and any Basic Printing course.

167, 168, 169. ADVANCED ETCHING

A continuation of the basic course with emphasis on personal style and self-expression. Prerequisites: Basic Drawing and any Basic Print course.

171. ANCIENT ART
A chronological study of the art of the ancients, beginning with Minoan-Mycenean.

174. MEDIEVAL ART
A chronological study of the art of the Middle Ages, beginning with Early Christian and covering Romanesque through Gothic.

176. RENAISSANCE ART
A study of the art of the Renaissance in Italy as well as the Northern areas of Europe, with special emphasis on the High Renaissance and the Sixteenth Century in the North.

178. BAROQUE ART
A study of the art of the Seventeenth Century throughout Europe. Special emphasis on Rembrandt, Rubens, Bernini, and Velasquez.

183. NINETEENTH CENTURY ART: 1780-1880
A study of the movements of neo-classicism, romanticism, realism and impressionism with emphasis on David, Delacroix, Courbet, Manet and Monet.

184. 20th CENTURY ART: 1880-1940
A study of Post-Impressionism, Cubism, Expressionism, Surrealism, and other important movements with emphasis upon Cezanne, Picasso, Matisse, Kandinsky, and Duchamp.

185. CONTEMPORARY ART: 1940-1970's
Contemporary developments in art from Abstract Expressionism through Pop Art to Conceptual Art.

186. MODERN ARCHITECTURE
A survey of the outstanding monuments of the modern period, with emphasis on Frank Lloyd Wright, Gropius, Mies van der Rohe, and Le Corbusier.

192. PRO-SEMINAR FOR ART HISTORY MAJORS
A seminar for Seniors in Art History to develop critical thinking and discuss art historical problems and methods in depth.

196. SENIOR THESIS
A directed study course for art majors in either Studio or Art History. For Studio majors, an opportunity to prepare a portfolio to present to prospective boards of admissions to graduate programs in studio art. For Art History majors, an opportunity to develop research skills through directed study and a term paper.

197. DIRECTED CREATIVE RESEARCH

A seminar for advanced students who want to do an art project not covered by the courses in the catalogue under the direction of one or more members of the Fine Arts Faculty and are willing to meet once a week in a group to discuss their progress with each other and with the teacher leading the seminar.

198. PRACTICUM

An apprenticeship with either a practising artist or practising art teacher as a preparation for life. The students taking this will be required to give visible and written accounts of this experience as well as indication of personal growth. By permission of the chairman only.

199. DIRECTED STUDY

Tutorial work in the areas of Art History, or Studio Art. By permission of the Chairman of the Fine Arts Department.

COLLEGE OF HUMANITIES
THE B.A. IN GENERAL HUMANITIES

James Torrens, S.J., Ph.D., *Director*

General Humanities Committee: J. Torrens, S.J., Chairman;
H. Breidenbach, D. Dugan, F. Jimeñez,
I. Mocsy, F. Tollini.
Assistant Professor: Bernard J. Brown, S.J.

The Bachelor of Arts in General Humanities has been established for those students who feel that none of the traditional single-subject majors meets their educational needs or desires. A student enrolled in this new program composes his own curriculum with the counsel and supervision of a faculty adviser. He may select any one of three kinds of curriculum:

Either (1) a "humanities core" curriculum emphasizing several of the humanities rather than a single discipline or subject. This type of program will generally be reserved for pre-law students, which means that the G.P.A. will have to be relatively high;

or (2) an inter-disciplinary curriculum emphasizing two or more closely related subjects (e.g., U.S. or Russian history, literature, and philosophy);

or (3) an entirely original curriculum emphasizing a new discipline or major created by the student himself (e.g., an Ethnic Cultures major, an Ecology major, a Dance

Therapy major) possibly including new kinds of courses (e.g., community work under faculty supervision).

This degree program adds a new flexibility to the educational structure at Santa Clara. It gives the individual student a distinct voice in the decision-making process affecting his own education. It is intended to provide a challenge to the creative and enterprising student.

Admission

Any student in good standing who has completed at least one full term at Santa Clara may apply for admission to this degree program. The application must ordinarily be submitted before the second term of the student's junior year. Application forms are available in the offices of the Director of the Humanities Program and of the Dean of Humanities. Required for acceptance is a curriculum of study officially approved by the administration.

A student who wishes to be admitted should in close consultation with an authorized member of the faculty devise his own curriculum. The curriculum proposal, signed by the student and his adviser, is then submitted together with the application form to the Director. The latter reviews the proposal with his Committee, either approving or disapproving it. If approved, the curriculum proposal is forwarded to the Dean for his authorization; copies are then filed in the office of the Registrar. If disapproved, the proposal will be returned to the student with critical comment. A new or revised proposal may be submitted at any time.

An approved curriculum will be considered binding on both student and University. Once the student has completed the curriculum, he will be awarded the B.A. degree in General Humanities. It is the student's responsibility to complete successfully the curriculum exactly as approved, including any authorized changes.

Regulations

1. Since the program exists to provide educational opportunities not offered by the traditional major programs, each curriculum proposal should promise reasonable attainment of this objective.

2. No curriculum proposal will be approved unless it offers a sound and challenging curriculum of integrated courses; free electives may be part of any curriculum.

3. Once a proposed curriculum has been approved, any subsequent changes must be approved by the Director and by the Dean.

4. Students accepted into the program are bound by all general University and College requirements and regulations unless otherwise specified in their approved proposals.

5. At least fourteen courses should be on the upper-division level.

6. At least four courses should be taken outside the College of Humanities.

7. Normally, no student will be permitted to schedule more than one "directed reading" or "individual study" course in a single term.

8. Likewise, no student will be permitted to schedule more than one "directed reading" or "individual study" course from the *same* instructor within a single academic year.

Advisers

The success of the program will depend to a great extent upon the quality of the advice offered a student by his faculty mentor.

A student, therefore, who wishes to enter the program should select his faculty adviser carefully, making sure that the said member of the faculty is particularly qualified to direct a program of study in the student's area of interest. The Director of the Program is prepared to help a student select a suitable adviser.

A student may change his adviser with the approval of the Director.

Committee

The Humanities Program Committee consists of five experienced, full-time faculty of the College of Humanities and the Director of the Program. The Director will call all meetings of the Committee and he will select, in consultation with the dean and the chairman of the college, the five faculty who will comprise the Committee.

COLLEGE OF HUMANITIES
DEPARTMENT OF HISTORY

Timothy J. O'Keefe, Ph.D., *Chairman*

Professors: Norman F. Martin, S.J., Matt S. Meier
Associate Professors: E. Thadeus Flood, Timothy J. O'Keefe
Assistant Professors: Donald F. Crosby, S.J., Steven M. Gelber, Miles M. Merwin, Istvan I. Mocsy, Peter O. Pierson, David E. Skinner
Lecturers: Susan Groag Bell, George F. Giacomini

Students who wish to make History their major subject, besides completing the University and College requirements, must pass twelve courses in History with an average grade of C. The major program must include four lower division and eight upper division term courses. The latter must be taken during the student's last two years. In order to assure breadth in historical studies the History major should take a minimum of three courses in each of the following broad areas: United States, European, and non-Western/Latin American History. It is strongly recommended that History 4, 5 and 6 be taken by all students who have not had a comparable course in high school.

Honor sections and upper division Individual Study courses are offered. Senior Honors students who possess the necessary qualifications may be admitted to graduate seminars by special permission of the chairman and the instructor.

Courses bearing both upper and lower division numbers require substantially more work from upper division students.

4, 5, 6. WESTERN CIVILIZATION

A history of Western culture from its beginning to the present, emphasizing those institutions which have shaped modern civilization.

11, 111. THE CLASSICAL MEDITERRANEAN WORLD

The Hellenic world from Homer to Alexander the Great; Hellenistic Civilization; Rome from republican city to world empire; late antiquity.

12, 112. MEDIEVAL EUROPE

The Roman Empire and the Barbarians in Western Europe; Byzantine and Islamic impact; the Carolingian empire; feudalism and the Viking age; Papacy, Empire and Feudal monarchies; Renaissance of the twelfth century; the high Middle Ages.

13, 113. RENAISSANCE AND REFORMATION, EUROPE 1350-1610.

Autumn of the Middle Ages: the Renaissance as a cultural movement; the religious unheaval and its consequences; Europe and the Ottoman Empire; overseas expansion and the price revolution: Europe divided.

14, 114. THE AGE OF REASON AND THE OLD REGIME, EUROPE, 1610-1789

Continuation of religious and dynastic struggles: advance of scientific thought and its consequences; church, state and social structure; world empires and balance of power; Baroque and classic styles.

15, 115. REVOLUTIONARY EUROPE: NATIONALISM, SOCIALISM, IMPERIALISM, 1789-1890

The French Revolution and Napoleon; Conservative reaction; and liberal nationalism; 1848 revolutions; the Industrial Revolution, socialism and colonialism.

16, 116. DEMOCRACY AND TOTALITARIANISM, TWENTIETH CENTURY EUROPE

The origins of World War I; the democratic triumph and the post war years; the Russian Revolution; Italian and German Fascism; World War II; contemporary Europe.

41. HISTORY OF SCIENCE AND TECHNOLOGY

The evolution of science and technology from ancient to modern times. Methods of scientific inquiry; scientific revolutions; function of science and technology in society and their impact upon man and civilizations. The basic purpose of this course is to bridge the gulf between the Humanities and Sciences by demonstrating the underlying conceptual unity of the scientific and non-scientific intellectual experiences.

51. EAST ASIAN CIVILIZATION

A history of East Asia from its beginnings to recent times, with special reference to China and Japan. Traditional institutions. Impact of Western imperialism. Modernization of Japan. Japanese militarism and Sino-Japanese conflict.

55. AFRICA

An historical survey of Africa with emphasis in the early period on cultures and social organization and in the later period on imperialism, colonialism and the development of African nationalism.

56. SELECTED REVOLTS

A comparative study of the causes, successes and failures of selected revolutions and rebellions, emphasizing revolutionary leadership, ideology, and organization.

61. LATIN AMERICA: PRE-COLUMBIAN AND COLONIAL

The meeting of three worlds: Amerindian, European and African. The product of this encounter: institutional life and civilization of colonial Latin America. The New World breaks with the Old: wars for independence, 1810-1825.

62. LATIN AMERICA: MODERN AND CONTEMPORARY

Developmental problems and challenges, 1825 to the present; autocracy and militarism, power of the privileged few, regionalism and communication barriers, foreign penetrations, Church influences, growth of cities and upsurge

of guerrilla movements, rise of democratic and socialist reform programs, cultural identity and heritages of the past.

71. UNITED STATES, 1607-1789
A comprehensive course, stressing about equally political, economic, social, and intellectual aspects of American development to 1789. Attention is given to the different interpretations of American history and to the factors that produce new points of view about the nation's past.

72. UNITED STATES, 1783-1865
From Federalism to Jeffersonian Democracy. The War of 1812 and the break from Europe. Emergence of sectionalism and the age of Jackson. Manifest Destiny and the road to the Civil War. The War and its effects.

73. UNITED STATES, 1865-1917
Reunion and reconstruction, North and South. Industrialization and exploitation. The closing of the frontier. From isolation to empire. Progressivism and reaction. The impact of World War I.

74. UNITED STATES, 1917-PRESENT
The paradoxical twenties. The crash, the depression, and the New Deal. The coming of World War II and the impact of the war on American society. The Cold War at home and abroad. Social protest and modern America.

81. THE MEXICAN AMERICAN
A broad history of the Mexican American in California and the Southwest. Special emphasis on the period since 1848 and on Texas, New Mexico, and California.

82. THE BLACK AMERICAN
A history of Black Americans from African backgrounds to the end of reconstruction. Students will examine and discuss basic elements in Black history.

91.77, 92.77. HONORS COLLOQUIUM, EUROPE
Selected problems in Ancient and Modern European history. The methods of the historian (Restricted to Honors Program students).

97.77. HONORS COLLOQUIUM, UNITED STATES
Selected problems in United States history. The methods of the historian. (Restricted to Honors Programs students).

98. LOWER DIVISION SEMINAR
An opportunity for both major and non-major lower division students to explore history in a small group discussion class. Specific subject will vary with different professors.

100. THE THEORY AND PRACTICE OF HISTORY
Practical and theoretical problems of the historian. A critical study of historical writing in a specific area of history. Research and composition are emphasized.

108. WOMEN IN WESTERN SOCIETY
A survey of the role of women in European and American history emphasizing changing attitudes toward women, their condition of life, and the movements for political, legal and economic equality.

118. ANCIENT GREECE
The Mycenaean world; the origins of Hellenic civilization; Periclean Athens; Sparta; interpolis conflicts; Hellenic culture.

120. ANCIENT ROME
The formation of the Roman Republic and its expansion; political and social reform movements; Augustus and the Principate; the culture of the Golden and Silver Ages; Roman law; the decline of the universal state.

123. TOPICS IN EARLY MODERN EUROPE
A course treating some specific aspect of European history from the fourteenth through the eighteenth centuries. Topics might include: The Italian Renaissance, The Diplomacy of the Old Regime, Calvinism, the Counter Reformation and Revolution.

124. SPAIN
Medieval origins of the Spanish kingdoms and the development of Spanish society. The age of discovery and the Siglo de Oro. European power and overseas empire. Crises of the nineteenth and twentieth centuries.

125, 126. HISTORY OF FRANCE
A historical study of the development of French society institutions, thought and culture from the mid-fifteenth century to the 20th century. The Ancien Regime. The French Revolution and the Napoleonic period. The struggle between the monarchical and the republican traditions.

128, 129. GERMANY
A history of the social, economic, political, and cultural development of the German nation. 128, Germany from 1640 to 1890; 129, Germany from 1890 to the present.

130. HISTORY OF IRELAND
A study of Irish history since the Reformation emphasizing the conflict between the Protestant Ascendancy and the Catholic population. The successive struggles for home rule and an independent republic. The modern division of Ireland.

131, 132. ENGLAND

The growth of the English state and constitution. The continental ambitions of England during the Middle Ages. The Tudors and the English reformation. The constitutional struggle under the Stuart monarchs. The development of the

136, 137. HISTORY OF RUSSIA

The political social and religious formation of early Russia; the reforms of Peter the Great; Russian absolutism and the impact of Western Europe in the eighteenth and nineteenth centuries; the Russian Revolution and economic and political developments in the Soviet Union; World War II; the Soviet Union as a world power.

138. HABSBURG AND EAST CENTRAL EUROPEAN HISTORY

Emergence of the medieval kingdoms of Poland, Hungary, and Bohemia. The rise of the House of Habsburg and the establishment of the Danubian empire of Austria. Social and institutional patterns, problems of modernization and reform. Growth of nationalism and the dissolution of the Habsburg Empire.

144. EUROPEAN DIPLOMATIC HISTORY

A study of the relations of the major European powers since 1870, with emphasis on the economic, political and social forces which influenced these relations.

151. ORIGINS AND DEVELOPMENT OF ISLAM

The Prophethood of Muhammed and the Muslim Revolution. The Islamic conquests and formation of Muslim Institutions. The development of philosophy, law and art during the "golden age" of Islam. The fragmentation of the Muslim empire; the rise of Turkish power; the Crusades.

152. MODERN MIDDLE EAST AND NORTH AFRICA

European Imperialism and the development of Arab Nationalism. Problems of economic development, political stability and military conflict.

153, 154, 155. AFRICA

Africa to 1600; Africa 1600-1850; Africa after 1850. These three courses are designed to offer a basic and intensive historical survey of African cultural institutions, and social and political forces. 153, 154.

156. MODERN JAPAN: NATIONALISM AND IMPERIALISM

Demise of the Tokugawas. Meiji restoration and enlightenment. The liberal movement. Socio-economic transformations. Continental expansion. The democratic experiment. Meiji-Taisho social movements. Special reference to ultranationalistic movements. The "Greater East Asia War." Post-war recovery.

157. MODERN MAINLAND SOUTHEAST ASIAN HISTORY
A study of political developments from mid-nineteenth century Anglo-French Imperialism to the emergence of national states. Particular reference to indigenous nationalist movements in French colonial areas and the modern transition in Thailand.

158. MODERN CHINA: FROM CONFUSIUS TO COMMUNISM
Sociopolitical changes from the late Ch'ing Reform Movement. Special emphasis on modern revolutionary movements, political history of the Kuomintang period, and the rise of the Chinese Communist Party.

159. RELIGION AND SOCIETY IN TRADITIONAL ASIA
Great religious traditions of Asia: a historical survey. Introduction to Brahminism, Theravada Buddhism, Mahayana Buddhism, Confucianism. Taoism and Shintoism and their place in Asian social history.

162. COLONIAL MEXICO
A history of Mexico from the Mayas and Aztecs to the end of the independence movement in the 19th century. Includes study of the economic, social and cultural developments.

163. MODERN MEXICO
A history of the national period from the 1824 federal republic to the present. Special emphasis on those factors in the more recent past which have contributed most to modern Mexico.

164. THE INTER-AMERICAN COMMUNITY
A history of the political, economic and social relations between the countries of the two Americas and their activities in regional and world organization.

165. ARGENTINA
Political, social and economic developments in this leading country of South American from pre-Columbian times to the present, with special emphasis on its modern national development.

167. BRAZIL
An analytical study of Brazil's past and present: the colonial era, the New World monarchies of Pedro I and II, and the Republic. Emphasis on social and economic developments.

168. LATIN AMERICA: THE NINETEENTH CENTURY
A topical development of Latin America from severance of colonial ties through the experiences of early nationhood: conservatism and liberalism, the caudillos and sectionalism, dictatorship and the oligarchies, nationalism and its consequences. Patterns of cultural growth and of foreign affairs.

169. CONTEMPORARY LATIN AMERICA
A topical study of twentieth century political, economic and social life. The dynamics of traditional legacies and reform programs. Ideals and realities of interamerican relations. Cultural characteristics. Present trends and prospects.

170. THEMES IN COLONIAL AMERICA
The development of religious, political, economic and social institutions in the North American colonies in the seventeenth and eighteenth centuries.

171. REVOLUTION, CONFEDERATION, CONSTITUTION
An intensive study of the origins, progress, and culmination of the American Revolution. Historiographical themes of the Revolution will be emphasized.

172. THE REPUBLICAN EXPERIMENT
A detailed examination into the establishment of an American political, social, cultural and economic identity from Washington through Madison.

173. NATIONALISM AND SECTIONALISM
The social and political reforms and the economic changes between 1815 and the Compromise of 1850, with emphasis on intersectional rivalry.

174. THE UNION IN CRISIS
A study of major aspects of the Civil War and the problems of reconstruction; the abolitionists, the rise of the Republican party; the conduct of the war; the role of the free Negro; constitutional readjustment; the rise of the new south.

177. DIPLOMATIC HISTORY OF THE UNITED STATES
Critical study of the international relations of the United States, and of the economic, political, social and public opinion forces influencing the development of American policy.

180. AMERICAN IMMIGRATION
American ethnic communities from the early nineteenth century to World War I. Problems of assimilation and acculturation. The ethnics and the churches; ethnics and politics. Examination of primary materials and analysis of conflicting interpretations of the immigrant experience.

181. THE RISE OF THE CITY
An historical study of the growth and development of the American city and its impact on all aspects of American life.

182. BLACK RESPONSE TO MODERN AMERICA
A study of the social and political institutions developed by the Black community to deal with the discrimination of the dominant society since 1877.

183. SOCIAL MOVEMENTS IN TWENTIETH CENTURY AMERICA
Popular movements for change, and against it. An investigation of the response of the American people to the problems of modern industrial society. Labor, women's rights, Black activism, anti-radicalism, Ku Klux Klan, peace movement, and others.

187. THE WEST
The spread of the frontier and the emergence of special western problems. The west as a force in United States history and culture, and its effects.

189. CALIFORNIA
The history of California, with major attention given to the period following its annexation to the United States.

190. HISTORIOGRAPHY
A critical and historical study of the writings of great historians from antiquity to the present, relating them to the philosophical currents and social realities of their times; problems in contemporary historiography.

198. COLLOQUIUM
Group meetings for reading, research, and discussion of selected historical problems and periods.

198.01 England
198.02 Early Modern Europe
198.03 Recent Europe
198.04 Russia
198.05 East Asia
198.06 Latin America
198.07 The United States
198.08 California
198.09 Africa
198.10 Revolution
198.11 Practicum
198.12 Ancient Mediterranean

199. INDIVIDUAL STUDY
Directed reading and research in source materials and secondary works dealing with selected historical problems.

COLLEGE OF HUMANITIES
DEPARTMENT OF MODERN LANGUAGES AND LITERATURES

Andrew I. Rematore, Ph.D., *Chairman*

Professor: Victor B. Vari
Associate Professors: Raymond L. Biondi, Andrew I. Rematore, K-G Seely, Christian van den Berghe, Maurice M. Belval, S.J.
Assistant Professor: Heribert Breidenbach

Francisco Jiménez, Elena Offstein
Lecturers: Verónica Gonzàlez Mena LoCoco, Stephen Olivo, S.J.

The degree Bachelor of Arts may be taken in French, German, Italian and Spanish. In addition to such lower division courses as the individual candidate may need, each major must complete a minimum of eight upper division courses in the language of specialization. Each major program requires completion of language 100 and 101 or the equivalent as prerequisite to more advanced work. Only courses in which the student receives a grade of C or higher may be counted toward fulfilling a major requirement. All major programs must be approved by the student's faculty advisor.

High School Credit and Placement

The Department of Modern Languages recommends the following formula for students who wish to continue a language studied in high school. Those who have had two years of a language should enter Language 2; those with three years of a language should enter Language 21; those with four years of a language should enter Language 22. Students whose language background is inadequate to permit following the above formula may be permitted to enter lower numbered courses for credit after consultation with a member of the language faculty.

Students having the necessary proficiency, as demonstrated by interview with a member of the language faculty, may enroll in higher numbered courses than those of the placement formula. Once proficiency is established, lower division students may enroll in one upper division course per quarter with the permission of the instructor. Such courses will be counted as fulfilling major requirements.

Courses Exempt from Challenge

Courses numbered 1 through 101 are exempt from challenge.

Language Laboratory

Throughout lower division courses, and in such upper division work as the instructor may specify, students will be required to use the facilities of the language laboratory for approximately 30 minutes per day to increase their language skills. Laboratory work is scheduled individually, and is in addition to the required hours of classroom work.

Conversation Groups

As an adjunct to intermediate and advanced courses, the department offers students the opportunity to participate in small conversation groups of five or six students, under the direction of a native speaker or an advanced major. Such groups meet twice a week for a one hour period, at a time agreed upon by group members, for informal practice in hearing and speaking the language in question.

French

(See general statement, page 90)

Bachelor of Arts in French

The major program includes eight courses of upper division work in French. Recommended electives include courses in French or European history, comparative literature, art history, philosophy of language, and linguistics.

1. ELEMENTARY FRENCH
Development of skills in understanding, speaking, reading and writing French. Laboratory attendance required.

2. ELEMENTARY FRENCH
Continuation of French 1.

21. INTERMEDIATE FRENCH
Completion of Elementary texts; reading in original French prose.

22. INTERMEDIATE FRENCH
Review of spoken and written French, with accelerated readings.

50. ADVANCED CONVERSATION
Permission of instructor is required in advance of registration.

100. ADVANCED FRENCH I
Intensive speaking and composition. Required of all majors.

101. ADVANCED FRENCH II
Introduction to literary analysis. Required of all majors.

110. CULTURE ET CIVILISATION I
Vie intellectuelle et culturelle des pays de langue francaise.

111. CULTURE ET CIVILISATION II
A continuation of French 110, but may be taken independently.

120. MOYEN AGE
Epic literature, lyric poetry and theatre.

130. SIXTEENTH CENTURY
La Renaissance: Readings in Rabelais, the Pleiade poets and Montaigne.

140. SEVENTEENTH CENTURY
Le Grand Siĕcle: Evolution of literary and philosophical currents with emphasis on Corneille, Racine, Molière, La Fontaine, Descartes, Pascal, etc.

150. EIGHTEENTH CENTURY
Le Siĕcle des lumiĕres: Studies in the literature and thought of the Age of Enlightenment with emphasis on Voltaire, Diderot and Rousseau.

160. NINETEENTH CENTURY
Pre and Post-Romantic literature; prose and poetry.

161. NINETEENTH CENTURY
Realist, Naturalist, Symbolist, and Surrealist literature.

170. TWENTIETH CENTURY
The writings of *"la belleè poque"* and *"entre deux guerres"*.

171. TWENTIETH CENTURY
The *"engagé"* literature, the Anti-theatre, and the New Novel.

172. CINEMA
Origins and development of French film—with screenings and *travaux pratiques.*

180. SEMINARS
Variable topics in the language and literature. Under advice, may be taken any number of times for credit, but only once for major credit.

185. FRENCH APPLIED LINGUISTICS
Aspects of Modern French linguistics with special emphasis on phonology and phonetics.

190. DIRECTED READING
Individually designed programs of advanced readings. Written permission of the instructor and the department chairman required in advance of registration.

German

(See general statement, page 90)

Bachelor of Arts in German

The major program includes a minimum of eight upper division courses in German. Recommended elective courses include English 101 (Introduction to Linguistics), English 102 (Modern Grammar), and History 128 or 129 (Germany).

1. ELEMENTARY GERMAN I
Development of skills in understanding, speaking, reading and writing modern German. Daily work in language laboratory required.

2. ELEMENTARY GERMAN II
A continuation of 1.

20. INTERMEDIATE GERMAN FOR READING
Reading of scholarly articles partially in the student's particular field of study. Prerequisite: German 2.

21. ELEMENTARY-INTERMEDIATE GERMAN I
Completion of Elementary German, followed by short-stories, progressive exercises in conversation and advanced grammar.

22. INTERMEDIATE GERMAN II
A continuation of 21.

100. ADVANCED GERMAN READING, COMPOSITION AND CONVERSATION I
Required of all German majors.

101. ADVANCED GERMAN READING, COMPOSITION AND CONVERSATION II
A continuation of 100. Required of all majors. Completion or equivalent knowledge will admit students to courses in German Literature.

110. GERMAN CIVILIZATION I
A cultural history of the German speaking countries from the beginning to 1650.

111. GERMAN CIVILIZATION II
A cultural history of the German speaking countries from 1650 to the present.

120. EARLY MASTERPIECES OF GERMAN LITERATURE

130. THE CLASSICAL AGE

140. NINETEENTH CENTURY LITERATURE I: 1800-1830

141. NINETEENTH CENTURY LITERATURE II: 1830-1900

150. TWENTIETH CENTURY GERMAN LITERATURE

151. MODERN DRAMA

160. THE GERMAN NOVELLE

161. SURVEY OF GERMAN LYRIC POETRY

170. SPECIAL TOPICS
Special authors or themes. May be retaken for credit.

190. DIRECTED READING
Individually designed programs of advanced readings. Written permission of the instructor and the department chairman required in advance of registration.

Literature in Translation

N.B. Courses in literature in translation cannot be used as credit toward a German major, teaching credential, or a foreign language requirement.

115. GERMAN LITERATURE IN ENGLISH TRANSLATION

Italian

(See general statement, page 90)

Bachelor of Arts in Italian

The major program includes a minimum of eight upper division courses in Italian. English 65 (Mythology), English 144, 145 (Comparative Literature) and Renaissance History are recommended.

1. ELEMENTARY ITALIAN I
Development of skills in understanding, speaking, reading, and writing modern Italian. Daily work in language laboratory required.

2. ELEMENTARY ITALIAN II
A continuation of 1.

21. INTERMEDIATE ITALIAN I
Review of fundamentals of spoken and written Italian. Progressive readings reflecting Italian culture and values. Progressive exercises in conversation and composition. Prerequisite: 2 or equivalent.

22. INTERMEDIATE ITALIAN II
A continuation of 21.

100. ADVANCED ITALIAN I
Composition, Reading and Conversation. Required of all majors.

101. ADVANCED ITALIAN II
Composition, reading and conversation. A continuation of Italian 100. Required of all majors.

120. SURVEY OF ITALIAN CULTURE AND CIVILIZATION I
From its origin to the "settecento."

121. SURVEY OF ITALIAN CULTURE AND CIVILIZATION II
From the "ottocento" to the present.

130. DANTE, LA DIVINA COMMEDIA I
Inferno and Purgatorio.

131. DANTE, LA DIVINA COMMEDIA II
Purgatorio and Paradiso.

140. DUECENTO, TRECENTO
Emphasis on Dante's minor works. Petrarch's poetry, and Boccaccio's Decameron.

150. QUATTROCENTO, CINQUECENTO (RINASCIMENTO)
Important trends in the literary masterpieces of the Renaissance—significant works of Ariosto, Tasso, Leonardo, Machiavelli, Lorenzo de Medici, Poliziano, Castiglione.

160. SETTECENTO
The salient works of Vico, Goldoni, Parini, and Alfieri.

170. OTTOCENTO
The works of Foscolo, Leopardi, Manzoni, Carducci, Pascoli and Verga will be stressed.

180. NOVECENTO
Italian Literature of Twentieth Century with main trends in poetry, drama and the novel, from Pirandello to the present.

190. DIRECTED READING
Individually designed programs of advanced readings. Written permission of the instructor and the department chairman required in advance of registration.

Russian

(See general statement, page 90)

1. ELEMENTARY RUSSIAN I
Drill in pronunciation, elements of grammar and vocabulary. Progressive exercises in reading, writing, and speaking. Daily work in language laboratory required.

2. ELEMENTARY RUSSIAN II
A continuation of 1.

21. INTERMEDIATE RUSSIAN I
Review of grammar and syntax. Reading of original authors. Exercises in translation, composition, and conversation. Prerequisite: 2 or equivalent.

22. INTERMEDIATE RUSSIAN II
A continuation of 21.

Spanish

(See general statement, page 90)

Bachelor of Arts in Spanish

The major program includes a minimum of eight upper division courses in Spanish. Not more than two survey courses may be included in this minimum. Majors may choose to concentrate in Latin American material, in Spanish peninsular material, or may combine the two fields, but all major programs must be approved by the student's faculty advisor. Courses in the history of Latin America and the history of Spain are recommended. Spanish Applied Linguistics 175 and 176 are required of Spanish majors preparing to teach at any level.

1. ELEMENTARY SPANISH I
Development of skills in understanding, speaking, reading and writing modern Spanish, in that order. Daily work in language laboratory required.

2. ELEMENTARY SPANISH II
A continuation of 1.

21. INTERMEDIATE SPANISH I
Review of fundamentals of spoken and written Spanish. Progressive readings reflecting Hispanic culture and values. Progressive exercises in conversation and composition. Prerequisite: 2 or equivalent.

22. INTERMEDIATE SPANISH II
A continuation of 21.

N.B. Completion of 100, 101 or evidence of equivalent preparation will admit students to higher-numbered courses.

100. ADVANCED SPANISH I
Composition, conversation and grammar. Introduction to literary analysis. Required of all majors. Prerequisite: 22.

101. ADVANCED SPANISH II
A continuation of 100. Required of all majors.

105. SPANISH PRONUNCIATION AND INTONATION
Systematic study of the pronunciation and intonation of modern Spanish. Intended for majors, minors and prospective teachers needing further perfection of these skills. Individual diagnoses. Daily laboratory recording exercises. Prerequisite: 22 or equivalent.

120. SURVEY OF SPANISH LITERATURE I
Readings in Spanish literature from the beginnings to the eighteenth century. Alternate years.

121. SURVEY OF SPANISH LITERATURE II
Readings in Spanish literature of the second half of the nineteenth century. Emphasis on the novel. A continuation of Spanish 120, but may be taken separately. Alternate years.

125. COLLOQUIUM: SPANISH LITERATURE
Topic will vary. Reading and discussion of selected themes in Spanish Peninsular literature. Prerequisite: course work in Spanish Peninsular literature or permission of instructor. May be retaken for credit.

130. SURVEY OF LATIN-AMERICAN LITERATURE I
Readings in Latin-American literature from the Colonial period to about 1888. Given in alternate years. To be offered in 1975-76.

131. SURVEY OF LATIN-AMERICAN LITERATURE II
Readings in Latin-American literature from the Modernista movement to the present. Given in alternate years. To be offered in 1975-76.

135. COLLOQUIUM: LATIN-AMERICAN LITERATURE
Topic will vary. Reading and discussion of selected themes in Latin American literature. Prerequisite: course work in Latin American literature or permission of instructor. May be retaken for credit.

140. MODERN LATIN-AMERICAN LITERATURE I
Study of major Latin American writers of the late nineteenth and early twentieth centuries with emphasis on the novel. Given in alternate years.

141. MODERN LATIN AMERICAN LITERATURE II
A continuation of 140, but may be taken separately. Given in alternate years. To be offered in 1975-76.

145. CONTEMPORARY LATIN AMERICAN LITERATURE I
Study of major Latin American writers of the mid-twentieth century. Given in alternate years.

146. CONTEMPORARY LATIN AMERICAN LITERATURE II
A continuation of 145, but may be taken separately. Given in alternate years. To be offered in 1975-76.

150. TWENTIETH CENTURY SPANISH LITERATURE I
A study of the major writers of Spain from 1898 to 1936, with particular emphasis on the Generation of 1898.

151. TWENTIETH CENTURY SPANISH LITERATURE II
A study of the major writers of Spain from 1936 to the present.

161. SPANISH GOLDEN-AGE DRAMA
Reading and discussion of representative plays of Lope, Tirso, Calderón, and other dramatists of Spain's Golden Age.

165. CERVANTES: DON QUIJOTE

175. SPANISH APPLIED LINGUISTICS I
Introduction to the study of applied linguistics. Detailed scientific analysis of the phonology of modern Spanish. Contrastive analysis of Spanish and English sound systems. Designed for prospective language teachers, and for prospective workers in bilingual/cross cultural programs.

176. SPANISH APPLIED LINGUISTICS II
Detailed scientific analysis of the morphology and syntax of modern Spanish. Contrastive analysis within the Spanish structure system, and between Spanish and English structure systems. Prerequisite: 175.

190. DIRECTED READINGS IN SPANISH
Individually designed programs of advanced readings. Written permission of the instructor and the department chairman required in advance of registration.

Literature in Translation

N.B. Courses in literature in translation cannot be used as credit toward a Spanish major, teaching credential or a foreign language requirement.

115. TWENTIETH CENTURY MEXICAN LITERATURE IN TRANSLATION
Reading, analysis and discussion of outstanding works by modern and contemporary Mexican writers. Emphasis on the novel.

117. LATIN AMERICAN LITERATURE IN TRANSLATION
Reading, analysis and discussion of works of leading Latin American writers, with emphasis on contemporary novelists of South America.

195. DIRECTED READINGS IN LATIN AMERICAN LITERATURE IN TRANSLATION
Individually designed programs of readings. Written permission of the instructor and the department chairman required in advance of registration.

COLLEGE OF HUMANITIES
DEPARTMENT OF MUSIC

Roger Nyquist, D.Mus., *Chairman*

Associate Professors: Roger Nyquist, Lynn Shurtleff
Acting Assistant Professor: James Bert Neely
Lecturers: Robert Hagopian, Susan Snook
Artist-in-Residence: Charles Lampkin

The Music Department offers Majors in Applied Music, Music History and Literature, Theory and Composition, and Choral Conducting. Instruction is designed to prepare students for careers in the fields of concert, opera, radio, television, and higher education. There are special curricula for the composer and for the preparation of private teachers, church organists and choirmasters. Scholarship and research are encouraged.

The Department also offers courses of interest and value to all University students who wish to acquaint themselves with music as one aspect of a liberal culture either as appreciative listeners or as trained participants.

A student majoring in Music, besides completing the University and College requirements, must pass 14 courses in Music with an average grade of C. The major program must include 7 lower division term courses and 7 upper division term courses. In addition to these requirements, Applied Music majors must perform two solo recitals—a 45 minute recital in the Junior year, and a 75 minute recital in the Senior year. Music History and Composition majors must write a Thesis or Composition during the Senior year.

Applied Music

Private instruction is available in applied music 1 through 11 lower division, and 100 through 111 upper division. One unit credit is given for lower division and two unit credits for upper division each quarter.

100. ORGAN

102. HARPSICHORD

103. PIANO

104. VOICE

105. VIOLIN

106. VIOLA

107. VIOLONCELLO

108. DOUBLE BASS

109. WOODWINDS

110. BRASS

111. PERCUSSION

112. JUNIOR RECITAL
Forty-five minute recital.

113. SENIOR RECITAL
Seventy-five minute recital.

114. SENIOR THESIS
For Theory, History and Composition majors. A comprehensive paper or composition approved by the faculty.

Ensemble

71,171. UNIVERSITY CHORUS
Open to selected students for preparation and performance in concert of works of the significant choral literature. One unit credit will be given for each quarter.

72,172. UNIVERSITY CHAMBER SINGERS—By Audition only.
One unit credit given for each quarter.

73,173. UNIVERSITY ORCHESTRA
Open to selected students for preparation and performance in concert of works of the significant orchestral literature. One unit credit given for each quarter.

Special Voice Classes

74,174. VOICE CLASS
Application of basic vocal techniques to develop singing facility. Open to instrumentalists, actors, and other non (Voice) majors.

75,175. LYRIC DICTION
Drill on phonetics and application to song and opera.

76,176. OPERA WORKSHOP
Preparation, rehearsal, and performance of operatic works and excerpts from both the traditional and the contemporary repertory. By audition only.

77,177. THE SONG CYCLE
From Beethoven's "An die ferne Geliebte" to Borem's "War Scenes." Intensive study of representative cycles from the German, French, Italian, English, Spanish, and Russian literatures.

Music History and Literature

20. INTRODUCTION TO MUSIC
How to listen to music; art of music and its materials; instruments and musical forms; music of the 17th through 20th centuries. Non majors. Prerequisite to all classes in the Department of Music.

21. MUSIC OF ANTIQUITY THROUGH THE RENAISSANCE
A history of western music from its beginning through the 16th century.

22. MUSIC OF THE BAROQUE ERA
A history of the important musical developments from 1600 to 1750.

23. MUSIC OF THE ROCOCO AND CLASSIC ERAS
A history of the important musical developments from 1725 to 1830.

24. MUSIC OF THE ROMANTIC ERA
A history of the important musical developments from 1800 to 1900.

25. MUSIC OF THE 20TH CENTURY
A history of the important musical developments from 1900 to the present.

26,126. HISTORY OF KEYBOARD MUSIC
From 1500 to the present. Open to non-majors.

127. ORGAN LITERATURE
A survey of the important organ literature from 1500 to the present.

128. PIANO LITERATURE
A survey of the important vocal literature from 1700 to the present.

129. VOCAL LITERATURE
A survey of the important vocal literature from 1600 to the present.

30,130. CHORAL LITERATURE
Sacred and secular music from 16th century to the present. 1. Smaller forms: motets, anthems. 11. Larger forms: oratorios, cantatas.

31,131. HISTORY OF OPERA
From 1600 to the present. Open to non-majors.

32,132. THE SYMPHONY
The development of symphonic music. Detailed analysis of representative works for the symphony orchestra and supplemental readings. Open to non-majors.

33,133. CHAMBER MUSIC
A study of music for chamber ensembles, beginning with the early 17th century. Analysis of typical works in various media from different periods, with emphasis upon 18th and 19th centuries. Open to non-majors.

134. PERFORMANCE PRACTICE PROBLEMS SINCE 1600
Styles of solo and ensemble performance of instrumental and vocal music from Baroque to the present. Changing aspects of medium, tempo, dynamics, phrasing, ornamentation, improvisation, temperament, etc. Applied to problems of musical interpretation.

135. MUSIC CRITICISM
Problems, principles, and procedures of descriptive and critical analysis and synthesis; relationship of language to description and criticism; experience in precise, expressive use of language.

36. ETHNIC MUSIC
A survey of the origins, growth and development of Folk music of the United States from the Colonies to the present. Non-majors.

37. HISTORY OF JAZZ I
A survey of the origins, growth and development of Jazz; its sociological importance and influence on composers of serious music. Non-majors.

38. HISTORY OF JAZZ II
Continuation of Jazz I. Non-majors.

39,139. J. S. BACH
Life and works of Bach, with special emphasis on development of his musical style; detailed study of a selection of his chief works. Open to non-majors.

40,140. BEETHOVEN Life and works of Beethoven, with emphasis on development of his musical style. Analysis of representative works. Open to non-majors.

41,141. BARTOK
Life and works of Bartok, with emphasis on development of his musical style. Open to non-majors.

42,142. STRAVINSKY
Stravinsky as a central figure of 20th century music; his musical styles and their sources. Open to non-majors.

143. MUSIC SEMINAR
An exploration of the relationship of various philosophies of music with the actual writings of influential music critics over the centuries.

Theory and Composition

50. BASIC MUSICIANSHIP
For students who fail to qualify for Theory I. Listening techniques and basic principles of music. A student who fails this course may not major in music. Open to non-majors.

51. THEORY I
Basic terminologies and problems of notation, melody, rhythm, harmony and their relationship to musical form. Lecture and drill in writing melodies, sight reading, ear training and analysis. Primary triadic harmonies. Lab required.

52. THEORY II
Continuation of Theory I. Secondary triadic harmonies; lecture and drill in sight singing, ear training, keyboard harmony, analysis and composition. Lab required.

53. THEORY III
Modulation and chromatic harmony. Lecture and drill in sight singing, ear training, keyboard harmony, analysis and composition. Lab required.

54. THEORY IV
Analysis of 20th century techniques; a study of serialism and its development.

155. ADVANCED KEYBOARD HARMONY AND MUSIC READING SKILLS
Intensive training in keyboard facility and sight singing. Application of material introduced in 28.051, 52, 53.

56. MODAL COUNTERPOINT
16th century. Analysis of contrapuntal procedures and representative compositions; writing of motets and masses. Emphasis on style of Palestrina.

157. TONAL COUNTERPOINT
18th century. Analysis of contrapuntal procedures and compositions; writing of inventions, chorale preludes, canons, and fugues. Emphasis on style of J.S. Bach.

158. ORCHESTRATION
Prerequisite: 28.051, 52, 53. Ranges, tonal possibilities, technical limitations, and necessary transpositions for all orchestral instruments.

159. ADVANCED ORCHESTRATION
Required for Theory and Composition majors. Practical orchestration in all its applications.

160. FORM AND ANALYSIS
Analysis of representative works of 18th century. Baroque and Classic.

161. FORM AND ANALYSIS
Analysis of representative works of 19th and 20th centuries.

162. COMPOSITION
Organization of musical ideas into logical and homogeneous form, with emphasis on traditional forms. Prerequisite: 28.051, 52, 53, 600.

163. ADVANCED COMPOSITION
Writing for various instrumental media, solo, and ensemble. Prerequisite: 28.620.

Techniques and Conducting

65. CHORAL CONDUCTING
Conducting patterns applied to elements of interpretation.

166. ADVANCED CHORAL CONDUCTING
Art of choral conducting: coordination of hand technique, breath control, sound control, articulation, dynamics, legato line, interpretation of music. Prerequisite: 28.065.

67. ORCHESTRAL CONDUCTING
Fundamentals of score reading and baton technique.

168. ADVANCED ORCHESTRAL CONDUCTING
Further development of score reading and conducting techniques. Prerequisites: 28.067.

69,169. VOCAL PEDAGOGY
For teachers of voice, choral directors, and voice students. Processes in voice production: respiration, phonation, articulation, resonation. Voice classification, quality, diction registration, breath support, breath control.

170. DIRECTED STUDY
Personal research in an area of music history, aesthetics or applied music not covered in the course offerings. By permission of the chairman only.

COLLEGE OF HUMANITIES
DEPARTMENT OF PHILOSOPHY

James W. Felt, S.J., Ph.D., *Chairman*

Professor: Austin J. Fagothey, S.J.
Associate Professor: James W. Felt, S.J.
Assistant Professors: Timothy P. Fallon, S.J., James G. Fisher, Jr., James W. Friedman, Milton Gonsalves, S.J., William A. Parent

In the College of Humanities, the University of Santa Clara offers a four-year undergraduate program leading to the Bachelor of Arts degree with philosophy as the major emphasis.

Students making philosophy their major, besides fulfilling the general requirements of the University and the College of Humanities, have the following departmental requirements to complete:

At least four lower division courses in Philosophy, including 1, 2, and 3 (or the equivalent).

At least eight upper division courses. Students majoring in Philosophy must complete 1 and 2 before enrolling in upper division courses in Philosophy.

The twelve courses mentioned above must include:

At least one course in ethics, chosen from 5, 103, or (with Advisor's recommendation) an alternative upper division course treating ethical topics.

At least one upper division course in metaphysics, normally 102.

Although the Senior Thesis, 198, is not required of all students, the Department urgently recommends it to students planning to do graduate work.

A passing (C) average must be maintained in all Philosophy courses taken together.

Each student majoring in Philosophy will be assigned an Academic Advisor from among the Department's staff, and is free to change his Advisor as he becomes better acquainted with the faculty. He must each term consult his Advisor concerning courses to be taken during the subsequent term, so that his over-all program will have solidity and coherence, as well as adaptation to his own interests.

All courses offered by the Department are available for satisfying University and College requirements, except that as a general prerequisite two lower division courses must be taken before enrolling in any upper division course.

Lower Division

1. ANCIENT AND MEDIEVAL PHILOSOPHY
The beginnings of Western philosophy studied in representative writers of the Greek and medieval traditions, with attention to their historical relationships to one another and to contemporary thought.

2. EARLY MODERN PHILOSOPHY
Study of the principal fashioners of modern philosophical thought: philosophers mainly of the Seventeenth and Eighteenth Centuries. Problems include the scope and value of human knowledge, methods of inquiry, and the nature of the mind.

3. **LOGIC**
Introduction to logic. Discussion of the nature and structure of arguments, and introduction to the criteria for their evaluation. Exploration of some philosophical problems of logic.

4. **INTRODUCTION TO PHILOSOPHY**
An introduction to philosophy through a consideration of the problems raised in at least three major areas in philosophy: ethics, metaphysics, and epistemology. Recommended as a beginning course in philosophy.

5. **VALUES AND CONDUCT**
A more in-depth study of the problems in ethics; an exploration of current ethical questions, with attention to concepts of value, virtue, obligation and responsibility.

6. **KEY WESTERN PHILOSOPHERS**
Study of the intellectual impact of six principal makers of the Western mind: from Plato to Kant. Does not substitute, for Philosophy majors, for 1 and 2.

12. **MODERN MAN AND THE STATE**
This course introduces the student to political and legal philosophy. It strives for a closer understanding of the human person as he confronts and tries to perfect the political and legal institutions which shape his existence.

13. **MODERN MAN AND SCIENCE**
An examination of the impact of science on the way modern man views himself and his world; toward a human reassessment.

14. **FREEDOM AND TIME**
Thorough philosophical exploration of whether and in what sense man is free in his decisions, as opposed to simply determined by conditioning and environment. This problem will be seen to hinge upon one's understanding of the nature of time.

15. **PHILOSOPHIC TOPICS IN LITERATURE AND FILM**
A study of selected works of literature (and film) in order to investigate a range of philosophic problems. Topics considered will include: the limits of man's rationality, absurdity, human suffering, the nature of reality.

Upper Division

Systematic Courses

102. METAPHYSICS
Introduction to the classical problems and historically important contributions in formal theory of being, with attention to unresolved disputes, and often with focus on particular traditions such as Thomism, German Idealism, etc.

103. ETHICAL THEORY
An examination of the possibility and nature of ethical knowledge as found in various philosophical approaches to the moral life, and application of these concepts to current moral problems.

104. EPISTEMOLOGY
Formal study in depth of the conditions of knowledge, with emphasis on the concepts of "cognition" and "truth."

105. GOD AND PHILOSOPHY
Philosophical inquiry, based on both classical and contemporary views, as to whether the existence of God can be rationally demonstrated, whether it is compatible with evil, and how man relates to God.

109. DEDUCTIVE LOGIC
Examination of some formal symbolic systems of deductive logic. Prerequisite: Phil. 3 or permission.

111. TOPICS IN THE HISTORY OF CULTURE
Analysis of the significance of selected periods of Western culture in terms of fundamental philosophic considerations.

123. PHILOSOPHY AND PHYSICAL SCIENCE
Philosophical considerations involved in the presuppositions and methods of physical science. Prerequisite: Either two courses in natural science, or one course with a laboratory.

128. PHILOSOPHY OF PSYCHOLOGY
Critical examination of classical theories about the mind, such as those of Descartes and Hume, considered from the perspective of contemporary work in the field. Topics to be discussed include the nature of sensations, the privacy of mental events, dreams and mental images, knowledge of other minds.

136. PHILOSOPHY OF LAW
The sources and purposes of positive law, its foundations and derivations, and its relation to ethics and society.

138. POLITICAL PHILOSOPHY
A critical examination of modern political theories and of the problems of political society, such as individualism in its tension with the public good, etc.

142. METHODS
A reflection on the way the human mind operates whenever it is occupied, in order to determine the most general features of the knowledge process as it is employed in any field of knowledge.

Philosophical Movements

156. MEDIEVAL PHILOSOPHERS
Reading and interpretation of selected texts of medieval philosophers, with special attention to the writings of St. Thomas Aquinas. Attempts to disengage what is relevant and irrelevant to our age.

165. AMERICAN PHILOSOPHY
Reading, interpretation, and discussion of selected major works of major American thinkers. Critical evaluation. Their influences on American culture.

166. PROCESS PHILOSOPHY
Thorough introductory study of the modern metaphysics of A.N. Whitehead, which underlies all contemporary process philosophy and theology. Interpretation of being in terms of self-creative becoming. Prerequisite: 2, or equivalent.

167. EARLY ANALYTIC PHILOSOPHY
An introduction to some of the philosophic problems which have come to prominence in Great Britain and the United States during this century. In particular, the course focuses on the question, "What is the connection between language and the world?", as considered by Frege, Russell, and Wittgenstein.

170. MARXISM
Study of the philosophical origins, development, and consequences of the dialectical materialism originated by Karl Marx.

171. EXISTENTIALISM
Reading and analysis of some of the major writings in Existentialism.

172. PHENOMENOLOGY
Comprehensive historical introduction to the phenomenological movement in Europe after Husserl, and detailed introduction to phenomenological method and its importance in the natural and social sciences.

179. CONTEMPORARY PROBLEMS
Analysis of problems arising from outstanding contemporary writings, selected by the instructor. Readings and discussions.

Philosophers in Depth

181. PLATO AND ARISTOTLE
Reading, interpretation, and discussion of some of the major writings of these two authors. Critical evaluation in the context of the relation of one another and to subsequent Western thought.

185. KANT
Reading, analysis, discussion of some of the major works of Kant and his immediate successors.

186. HEGEL
Reading, analysis, discussion of some of the major works of Hegel and his immediate successors.

189. HEIDEGGER
Reading and analysis of the argument in *Being and Time* with an introduction to the later work: toward a critical appreciation of Heidegger's ontology and its influence.

195. WITTGENSTEIN
Exposition and analysis of the major themes in Wittgenstein's *Tractatus Logico-Philosophicus* and *Philosophical Investigations*. Prerequisite: 3 or 109.

198. SENIOR THESIS

199. DIRECTED STUDY

COLLEGE OF HUMANITIES
DEPARTMENT OF RELIGIOUS STUDIES

Joseph A. Grassi, S.S.L., *Acting Chairman*

Professors: Theodore J. Mackin, S.J., Joseph A. Grassi
Assistant Professors: Donald F. Crosby, S.J., Daniel O. Dugan, Harvey D. Egan, S.J., Roger D. McAuliffe, S.J., James E. Sweeters, Salvatore A. Tassone, S.J.
Acting Assistant Professors: Claire A. Arnesen, Francis R. Smith, S.J.
Lecturers: Daniel V. Germann, S.J., Tennant C. Wright, S.J.

General Requirements

All undergraduate students entering the University in the first year are required to complete three courses in the Department of Religious Studies, at least one of which must be completed after the sophomore year (or during one of the two final years). Students entering the University in the second year must complete two courses, and one of these during the final two years; those entering in the third or fourth year, one course in either year.

The Major in Religious Studies

Students may earn the Bachelor of Arts degree with Religious Studies as the major subject. Within Religious Studies three areas of concentration are available: the Scriptures, Theology, and Religion and Society. The student is not obligated to do so, but if he wishes to concentrate his study, he may elect one of these areas and, in consultation with his academic advisor, choose his courses in such a way as to develop the area of study coherently.

General Education

In addition to the requirements in general education for all students in the College of Humanities, the following are specific for students completing the major in Religious Studies:

Philosophy: three courses.

Foreign Language: by the end of the fall term of senior year the student must complete a reading proficiency test, administered by the Department of Religious Studies, in one classical or modern language.

History: two courses. These may be either the two-course sequence in the History of Christianity or the two-course sequence in History of Western Civilization. The latter is preferred.

Fine Arts: two courses selected from among those offered by the departments of Fine Arts, Music and Theatre Arts.

Requirements in Religious Studies

In consultation with his academic advisor the student is to select four lower division courses that best supplement his earlier instruction and open, as well, into his area of interest in Religious Studies.

1. INTRODUCTION TO RELIGIOUS STUDIES

An attempt to discover and evaluate the essential elements of the universal phenomenon of religion, especially in the light of contemporary man's understanding of himself and his world. Existential questions of wonder, love, death, freedom; religion in a world of evolution and revolution.

2. INTRODUCTION TO THE OLD TESTAMENT

A survey of the history of the people of Israel from the exodus through the post-exilic period to the Christian era, with particular attention on the formation of the Old Testament literature and on the developing form and content of the people's religious belief.

3. INTRODUCTION TO THE NEW TESTAMENT

A study of the formation of the New Testament literature in the first generations of the Christian community; in interpretation of the literary forms used by the community; an examination of the form and principal content of the primitive belief and worship.

4. INTRODUCTION TO CHRISTIAN THEOLOGY

The nature of theological reflection, studied by means of an examination of fundamental Christian images: God, man, the world, and Jesus Christ in contemporary thought.

5. INTRODUCTION TO CATHOLIC THEOLOGY

This course is specifically geared for students who wish to rediscover their Catholic heritage in view of the new "horizon" of faith generated by Vatican II. The emphasis will be upon an integrated, holistic understanding of the Catholic faith as a wisdom.

6. CHRISTIAN ORIGINS

A study of the environment in which Christianity began: Judaism in the time of Jesus (Qumran community, Pharisees, Zealots, Sadducees, ordinary people); the Hellenistic and Roman religions. The earthly ministry of Jesus. The transition from Kingdom to Church. The emergence of Christianity from Judaism.

8. RELIGIOUS EXPERIENCE, EAST AND WEST

A study and evaluation of religious experience as found and described in the history and development of various religious (primitive, Judeo-Christian, Hindu, Buddhistic, and secular systems (Marxism, aethistic humanism, etc.)

10. RELIGIOUS SYMBOL AND MYTH

An introduction to the major contemporary interpretations of the place of mythic and symbolic discourse in religious expression. Perspectives include the history of religions, the phenomenology of religion, and the psychology of the unconscious.

11. DEATH AND RELIGION
An examination of cultural attitudes towards death. Studies of dominant Eastern and Western religious mythologies of death, of Christian symbols of rebirth and resurrection, and of Buddhist symbols of reincarnation.

12. GREAT CHRISTIAN MYSTERIES
From a Biblical and contemporary point of view the great Christian mysteries of resurrection, death, redemption, salvation, the natures in Christ, the Trinity, sin, devil, and angels will be studied and evaluated.

20. CHRISTIAN PERSPECTIVES OF MAN
The specific relationship of the teaching of the Bible and Christian tradition on such matters as the origin of mankind, the human condition, the destiny of mankind and its attainment.

21. THE CHRIST OF FAITH
Selective theological interpretations of Jesus Christ, from Biblical literature, the history of Christian doctrine, and modern theological scholarship. The humanity and divinity of Jesus.

30. THE THEOLOGY OF CHRISTIAN COMMUNITY
A study of the development of religious community, especially in the Jewish-Christian tradition; an analysis of the most recent Christian interpretations of the Church.

51. EASTERN RELIGIONS
The course is designed to investigate religion as a way of life in the Far East. It is meant for students who know little about the religious cultures of the Far East but who recognize the great impact religion has had on the Eastern peoples. A study is made of the Vedic tradition, including Hinduism, Jainism and Sikhism. There is also an investigation of Buddhism, with particular emphasis on Zen; and finally an exploration of the teaching and principles of Confucianism, Taoism and Shintoism. The course is a combination of lecture and reading, with emphasis on class discussion.

52. WESTERN RELIGIONS
A study of the religious origins of Western man. Prehistoric and primitive cultures will be briefly considered, but a more detailed investigation will be made into the major religious cultures of the Middle East which have had a profound influence on values in the West. Not a history of Western religions, but an attempt to give an explanation of Western man as he is today.

57. TWENTIETH CENTURY CHRISTIAN PROPHETS
A study of the teaching of great Christian spokesmen of this century and of the effect of this teaching and of their conduct on society. Among those studies are the following: Reinhold Niebuhr, Dietrich Bonhoeffer, Paul Tillich,

Pope John XXIII, Karl Rahner, Martin Luther King, Jr., Hans Küng and Daniel Berrigan. The course is ecumenical in scope and content.

60. CHRISTIAN ETHICS

A study of the dynamics of Christian conduct and of the moral implications of the Christian commitment. The formulation of the principles of a Christian ethic; their application to selected areas of moral conduct in contemporary life, e.g. to wealth and poverty, violence and non-violence, war and peace, inter-personal relations.

70. THE HISTORY OF CHRISTIANITY, PART I

A study of the history of the Church from the first community at Jerusalem until the eve of the Protestant reformation. The ruling perspective is that of developing theology and changing religious expression, but these set in their cultural and political contexts.

71. THE HISTORY OF CHRISTIANITY, PART II

A continuation of Religious Studies 70, beginning with the Protestant reformation and continuing until the present. Again the perspective is that of developing theology and changing religious expression.

75. AMERICAN RELIGIOUS EXPERIENCE: THE COLONIES TO THE CIVIL WAR

A survey of American religious themes, movements and personalities from the colonies to the Civil War. Principal topics: Puritanism, Its Rise and Fall; The Churches and the Revolution; Religious Freedom and Separation of Church and State; Revivalism; Humanitarian Reform; Slavery and the Civil War.

76. AMERICAN RELIGIOUS EXPERIENCE: THE CIVIL WAR TO THE PRESENT

A survey of American religious themes, movements and leading personalities from the Civil War to the present. Principal topics: The Development of Black Churches; The New Immigration, Nativism and the Catholics; The Social Gospel; Churches and Imperialism; The Churches in the twenties and thirties; The Churches and World War II; Post-war Religious Developments.

80. CHRISTIAN LITURGY

The course leads the students into a living appreciation of the structure and rhythm of liturgical worship and of its function as celebration in Christian life. The appreciation is developed through the students' creating, as well as critically analyzing, various forms of Christian liturgy.

101. OLD TESTAMENT: THE PROPHETS

A study of the Former Prophets and the Latter Prophets according to the Hebrew tradition. An analysis of the meaning of prophet in the religious community, Israel.

102. OLD TESTAMENT: THE WRITINGS
A study of those books making up the Writings of the Hebrew tradition, as well as the added books of the deutero-canonical Wisdom Literature of the Septuagint. Selected readings in the inter-testamental writings and an inquiry into their influence on early Christianity.

105. THEOLOGY OF LUKE—ACTS
An analysis of the Gospel of Luke and of the Acts of the Apostles, with special emphasis on the work of Luke as author and theologian.

106. THE SYNOPTIC GOSPELS
A study of the Synoptic Gospels, of the history of their formation, of their literary forms. An analysis of Salvation History as contained in these sources.

107. THE THEOLOGY OF ST. PAUL
A study of the formation of the New Testament books attributed to Pauline authorship, of their vocabulary, imagery and religious concepts. An analysis of the Pauline theology.

108. THE THEOLOGY OF ST. JOHN
A study of the formation of the fourth Gospel, of the Johannine letters and of the Apocalypse (Book of Revelation); of their vocabulary, imagery and theological concerns.

117. BIBLICAL GREEK, PART I
A study of the grammer, syntax and vocabulary of the Koine Greek of the New Testament. Selected readings from the gospels and epistles.

118. BIBLICAL GREEK, PART II
A continuation of Religious Studies 117. Enrollment reserved for students who have completed that course or its equivalent.

122. THE PERSON OF CHRIST IN THE NEW TESTAMENT
A systematic study of the origins in Scripture of Christian belief in the person and natures of Jesus, and of his work in redeeming.

128. PSYCHOSYNTHESIS AND RELIGION
An inclusive and positive conception of man as a dynamic being in the process of personal growth within an evolving universe. It helps man to bring together all the parts of himself around a unifying center of being and awareness, the Transpersonal Self. It provides each individual techniques and ways to reach this higher self and bring it to bear in each existential situation.

130. THE THEOLOGY OF HOPE
A study of the dimension of promise-and-fullfillment inherent in Christian living and dying in anticipation of the arrival of God's kingdom. The existential tension between Christian possibility and Christian act.

133. THE THEOLOGY OF THE SACRAMENTS
A study of general sacramental theory; of the relationship of the Christian community to sacramental action; of the development of the cultural forms of sacramental action.

141. RELIGIOUS AUTOBIOGRAPHY
A study of several classic religious autobiographies. Students will write, and discuss portions of, their own religious biographies.

142. CHRISTIAN MYSTICISM
A study of selected writers in the contemplative and mystical traditions of Western mysticism.

144. THE PSYCHOLOGY OF RELIGION
A study of the phenomenon of religion as expressed in the various religious literatures, using both the psychological reflection on religion and the methods of analysis by psychologists, classical and contemporary.

145. MODERN CHRISTIAN SOCIAL MORALITY
A study of the principal social problems of contemporary history and of the suggested solutions to these problems in the documents of the Church. The course examines the relationship between religion and capitalism, poverty, racism, the various forms of government in so far as they make possible the life of a Christian; of private ownership, of labor unions. A study of John XXIII's encyclical, *Pacem in Terris* is central to the course.

147. QUESTIONS IN CONTEMPORARY PROTESTANT ETHICS
A study of a selection of contemporary Protestant theologians as their thought relates to such problems as the new sexual morality, the humanization of cities, political morality, and the style of life; special consideration of the thought of Tillich, Barth, H.R. Niebuhr, Cox and Ramsey.

148. ZEN BUDDHISM
An analytic study of the theory and practice of Zen meditation through classic Zen writings and through practical experimentation.

149. THE THEOLOGY OF MARRIAGE
A study of marriage Christianly understood from the Scriptures and from recent Catholic writing, and from a humane psychology of the human person. A survey of Roman Catholic Canon Law on marriage.

157. GOD IN CONTEMPORARY THOUGHT
A study of the question of God's existence and nature in the writings of contemporary thinkers, with special attention to neo-orthodox, existentialist and radical theologians of all persuasions.

160. THE SOCIOLOGY OF RELIGION
A study of religious phenomena and the function of religion in society using the analytic tools of the social sciences. Contributions of classical figures, e.g. Max Weber, Emile Durkheim and Malinowski; principal focus on contemporary theory and empirical studies of religion.

162. THEOLOGY AND SOCIAL CHANGE
A study of three or four theological perspectives as each comes to items with a selected problem of social change, e.g. race, technology, the third world, the university, violence, non-violence. Theological emphasis on questions of Christian humanism, theology of history and theories of social change.

163. THEOLOGY AND POLITICS
A study of the alternative ways to make explicit the relationship of theology and politics. Principal theologians studied: Reinhold Niebuhr, H. Richard Niebuhr, Jacques Maritain, Paul Tillich, John Courtney Murray, Paul Ramsey, Johannes Metz, Harvey Cox and Juergen Moltmann. Concentrated treatment of one or two problems as illustrative. Guest lecturers from related disciplines.

166. THE THEOLOGY OF NON-VIOLENCE
An investigation of non-violence not only as an instrument of social change, but as a way of life in its character of by-product of the Christian commitment. The course examines civil disobedience, demonstrations, draft resistance and other forms of conscientious protest against social evils of the times. Non-violence is studied in its historical perspective beginning with Laotze and Soacrates, and continuing through the Christian tradition with Tolstoy, Thoreau, Gandhi, Martin Luther King and the Berrigans.

168. WOMEN AND RELIGION
An investigation of the role of women in the religious traditions of East and West. A study of the concept of feminine and masculine symbolism in matriarchal and patriarchal social structures utilizing an interdisciplinary methodology.

173. QUESTIONS IN CONTEMPORARY CATHOLIC THEOLOGY
A study of selected theological problems in the writings of contemporary Catholic thinkers.

174. QUESTIONS IN CONTEMPORARY PROTESTANT THEOLOGY
A study of selected theological problems in the writings of contemporary Protestant thinkers.

180. CHRISTIAN LITURGY II

189. THE RELIGIONS OF MEXICO
A study of the nature of religion, with the data drawn mainly from the Pre-Columbian and the more modern religions of Mexico. The course includes a comparative study of the students' own religious modes and those of the various Mexican peoples.

190. SPECIAL QUESTIONS IN RELIGIOUS STUDIES

197. PRACTICUM IN RELIGIOUS STUDIES
A combination of teaching or religious work, special readings, and theological reflection under the guidance of the department faculty. Restricted to majors in Religious Studies.

198. DIRECTED READING AND RESEARCH IN RELIGIOUS STUDIES

199. COLLOQUIUM IN RELIGIOUS STUDIES

COLLEGE OF HUMANITIES
DEPARTMENT OF THEATRE ARTS

William R. James, Ph.D., *Chairman*

Associate Professor: William R. James
Assistant Professor: Stephen C. Schultz
Lecturers: Lynda A. Bender, Albert L. Gibson
Theatre Technician: Ronald Skolmen
Artists-in-Residence: Charles Lampkin, Diana Morgan Welch

The Curricular Programs

The Department of Theatre Arts offers two distinct programs leading to the degree of Bachelor of Arts: a program in theatre and a program in dramatic literature. It also offers a program in Modern Ballet.

The Theatre Program. Freshmen who elect the Theatre Program normally must complete twelve courses in the Department with an average grade of C or better. These courses are: 10; 20; two courses from 30, 31, 32; 150; 170; two courses from the dramatic literature series 110 through 119; and one course from 131, 133, 135, 151, 152; three electives from the upper division courses in Theatre Arts, one of which may be from the offerings of another academic department (with permission of the Theatre Arts Chairman).

Students who expect endorsement from the Department for graduate training in acting, directing, or design, or for apprentice programs in the professional theatre, should take elective courses inside and outside of the Department in areas designed to increase specific skills. Actors are strongly advised to take appropriate courses in acting, music, voice, and dance. Designers and technicians are urged to take all courses in technical production, and related courses in other departments, such as, Basic Design, Basic Drawing, Survey of Art, and Visual Thinking.

All majors in Theatre Art are expected to participate in the production program of the Department. Course credit is given for accumulated production work at the discretion of the faculty.

Dramatic Literature Program. In cooperation with the Department of English, the Department of Theatre Arts offers a program in dramatic literature. This program is designed for students whose interests in theatre and drama are primarily academic, and for those who seek literary studies in drama and dramatic criticism. The requirements of the program are satisfied by taking twelve courses in English and Theatre Arts.

In the lower division these courses are Theatre Arts 9, English 25 and 28, and one course selected from Theatre Arts 10, English 46, 47, 48, 65, 66. Upper division students normally must take English 104; one course in Shakespeare; one of the following sequences in its entirety: English 110, Theatre Arts 111, 112; or English 113, 114, 115; three electives from upper division English and Theatre Arts courses of which at least one must be in something other than dramatic literature.

The Theatre Production Programs

In conjunction with its curricular programs, the Department also produces a number of plays each year. This program includes a season of at least three faculty directed and designed plays on the main stage of the Mayer Theatre, and an unfixed number of faculty and student directed plays on the studio stage. The main stage productions often include the appearance of a professional guest artist. The studio plays are intended to supplement the main stage productions by providing a creative outlet for beginning actors, playwrights, and directors, and to provide an opportunity for experiment and innovation in theatre art.

1. FUNDAMENTALS OF SPEECH
A basic course in oral communication, stressing the practice of extemporaneous speaking. Content, organization, and delivery of informative and persuasive talks.

9. INTRODUCTION TO DRAMA
An elemental study of drama as a literary art form. The nature of drama and dramatic genre is explored from a social and historical perspective.

10. INTRODUCTION TO THEATRE ARTS
A basic study of theatre as a performing art. The functions and techniques of the theatre artist. Vocabulary of the theatre. Representative plays studied as pieces to be performed.

20. THEATRE GAMES
Improvisation. Analysis of skills and problems of individual students. Introduction to creative method. Sensitizing of physical and mental tools.

21. BASIC SKILLS FOR ACTORS
A series of four workshops taught by four different instructors. Workshops are Voice (three weeks), Movement (three weeks), Fencing (two weeks), and Make-up (two weeks). Prerequisite: TA 20 or the equivalent.

28. BLACK THEATRE
A production oriented course investigating the plays, playwrights, and production methods of plays dealing with the Black experience in America.

29. REHEARSAL AND PERFORMANCE
Course reserved for accumulated production credit by lower-division students. Permission of the faculty required.

30. BASIC STAGECRAFT
Principles and techniques of stagecraft. Stage nomenclature. Handling of scenery, power and hand tools. Modern production methods.

31. BASIC COSTUME CRAFTS
Principles and techniques of costuming for the theatre. Pattern making, cutting, sewing.

32. BASIC LIGHTING AND SOUND
Principles and practice of stage lighting and sound. Instrumentation. Methods of control. Elemental design theory and practice. Plotting, cueing, recording, principles of amplification.

65. ORAL READING
Reading literature aloud. Development of vocal skills for communicating thought and feeling in literature.

70. THEATRE GRAPHICS
Introduction to graphic representation. Mechanical drawing, perspective, design and color, rendering for scenic design and costume design.

110. CLASSICAL DRAMA
See English Department section.

111. CONTINENTAL DRAMA
A study of continental drama of the 17th, 18th, and early 19th centuries in translation. Emphasis on Neo-classicism and Romanticism. Alternate years.

112. MODERN DRAMA
A study of continental drama from Ibsen to the Theatre of the Absurd in translation. Emphasis on the avant-garde.

113. ENGLISH DRAMA I
See English Department section.

114. ENGLISH DRAMA II
A study of the drama in England from 1660 to the close of the 18th century. Alternate years.

115. ENGLISH DRAMA III
A study of the drama in England from George Bernard Shaw to the present. Alternate years.

116. SHAKESPEARE'S TRAGEDIES
See English Department section.

117. SHAKESPEARE'S COMEDIES
See English Department section.

118. SHAKESPEARE'S HISTORIES AND SONNETS
See English Department section.

119. AMERICAN DRAMA
A study of drama in the United States from 1787 to the present. Emphasis on the 20th century.

122. SCENE STUDY
A detailed study of creative method in role development. Considerable attention given to individual diagnosis and analysis. Alternate years.

124. ACTING FOR TELEVISION
A basic course in television acting for advanced actors. Studio orientation. Camera technique. Blocking, cueing, make-up.

128. BLACK THEATRE
A production oriented course investigating the plays, playwrights, and production methods of plays dealing with the Black experience in America.

129. REHEARSAL AND PERFORMANCE
Course reserved for accumulated production credit by upper-division students. Permission of the faculty required.

130. ADVANCED STAGECRAFT
Free form structures. Special materials. Welding and iron work. Techniques of property construction. Alternate years.

131. STAGE LIGHTING
Advanced stage lighting design theory and practice. Optics. Color theory and aesthetics. Study of modern control systems. Prerequisite: 32. Alternate years.

133. SCENE DESIGN
Elements of scenic design. Perspective, rendering, drafting, model making. Styles of design. Scene painting and dressing the set. Prerequisites: 30, 70. Alternate years.

134. HISTORY OF COSTUME
History of costume in the Western world from ancient times to the present. Traditional and conventional stage costumes. Alternate years.

135. COSTUME DESIGN
Principles of costume design for the stage. Fabrics and special materials. Rendering. Style problems. Prerequisites: 31, 70, 134. Alternate years.

137. CHILDREN'S THEATRE AND CREATIVE DRAMATICS
A study of plays and production methods for young audiences. Story theatre. Dramatics as a stimulant to imagination and social growth.

139. TELEVISION PRODUCTION
An introductory course in television production designed to provide a base for advanced work. Studio nomenclature and equipment. Camera handling. Cutting and switching. Recording, audio, lighting, electronic effects.

150. PLAYSCRIPT INTERPRETATION
Analysis and interpretation of the playscript for the theatre artist. Structure, meaning, style, and tone investigated in a variety of dramatic forms. Alternate years.

151. PLAYWRITING
Critical analysis of dramatic structure and dramaturgic technique. Writing of original plays. Alternate years.

152. PLAY DIRECTING
Problems of play directing and skills required of play director. Projects in directing. Prerequisite: 150 or equivalent. Alternate years.

160. THEATRE ADMINISTRATION
Functions and techniques of the Producer, Business Manager, Stage Manager, House Manager, and Box Office Manager. Building an audience. Control systems. Alternate years.

170. HISTORY OF THE THEATRE
A study of the physical theatre, production theory and practice, acting styles, and methods of staging from the ancient Greeks to the Romantic Movement. Alternate years.

172. THEORY AND PRACTICE IN MODERN THEATRE
A detailed study of selected theatre practitioners, their theories and techniques, from the early realists to the present. Alternate years.

180. CREATIVE PROJECTS
Projects in acting, directing, technical production, design, playwriting, stage management, or theatre administration initiated by the student. May be taken only by students who have exhausted course possibilities in chosen topic. Credit given by pre-arrangement with appropriate staff menber. Permission of Departmental Chairman required.

190. INDEPENDENT STUDY

198. PRACTICUM

THE BALLET PROGRAM

Students who wish to specialize in ballet may register for a B.A. in General Humanities and, under the supervision of the ballet artist-in-residence, create their own curriculum. Such a curriculum should ordinarily include a full series of courses in ballet as well as a heavy concentration of courses in a second field (e.g., psychology).

Theatre Arts 40 is a prerequisite for all other courses in Modern Ballet; it provides the basic philosophy and training for the entire curriculum of the program.

The State of California recognizes a teaching minor in Modern Ballet. The normal requirements for the teaching minor in Modern Ballet at Santa Clara are Theatre Arts 40, 41, 42, 43, 44, 45.

The Ballet Program also sponsors a Ballet Ensemble which specializes in presenting liturgical dance as part of the Mass. Grants from the Anna G. Gamble Foundation have

provided the necessary support for this program. The Ensemble also produces classic and Modern ballets with nationally known guest artists.

40. ELEMENTARY MODERN BALLET I
Basic ballet barre work, center work in "dry" form, with simple adage and port de bras. Improvisation to all kinds of music. History, aesthetics, discussion films.

41. ELEMENTARY MODERN BALLET II
Continuation of 40.

42. ELEMENTARY MODERN BALLET III
Continuation of 41, allegro with linking steps and movements. Improvisation to all types of music. History, aesthetics, discussion, films.

44. INTERMEDIATE MODERN BALLET I
Completion of barre work, simple combinations at barre and center. Improvisation to all types of music. History, aesthetics, discussion, films.

45. INTERMEDIATE MODERN BALLET II
Survey of history of dance from primitive man through ancient, medieval, Asiatic, and modern dance. Relation to other fine arts, to religion. Discussion of history and techniques with films.

140. INTERMEDIATE MODERN BALLET III
Continuation of 45, introduction to pointe work, development of more complex combinations at barre and center. Improvisation and individual projects. History, aesthetics, films.

142. ADVANCED MODERN BALLET I
Developed pointe work, more intricate combinations at barre and center. Improvisation and elementary choreographic expression. History, aesthetics, special films. Cinema-ballet.

143. ADVANCED MODERN BALLET II
Continuation of 142.

144. ADVANCED MODERN BALLET III
Continuation of 143, more finished creative expression. Methods for teaching children, supervised teaching. Thesis on dance. Discussions of history and aesthetics.

147. MODERN BALLET ENSEMBLE
Open to selected students for preparation and performance in modern and historical ballets. Credit available only after three terms of membership. May be repeated for credit.

THE COLLEGE OF SCIENCES

John B. Drahmann, Ph.D., *Dean*

DEGREE PROGRAMS

Bachelor of Science
Bachelor of Combined Sciences

The College of Sciences offers major programs leading to the degree of Bachelor of Science in the areas of Biology, Chemistry, Mathematics, Physics, Economics, Political Science, Sociology and Psychology. A program of study leading to the degree of Bachelor of Combined Sciences is also available.

ACADEMIC INFORMATION

Freshmen and sophomores, except for Honors students and Advanced Placement students, are normally restricted to lower-division courses (numbered 1 to 99). Juniors and seniors are expected to take at least 12 upper-division courses (numbered 100 to 199).

Undergraduate work in the College of Sciences is measured in terms of number of completed courses. No credit is given for less than a full course and no special credit is given for laboratory work.

Credit by examination may be earned according to the rules specified in the section, "Academic Requirements and Regulations," except for courses involving laboratory work, seminar courses, or courses labeled NCX. Course descriptions indicate where laboratory is required.

COLLEGE OF SCIENCES

The College of Sciences requires that for a Bachelor of Science degree the candidate complete forty term courses; eighteen of these must be taken in the final (junior and senior years) and at least twelve of them must be upper-division courses (numbered between 100 and 199).

Candidates for the degree of Bachelor of Science must include in their programs, in addition to the requirements of their major departments, the following areas of study.

*English: Two courses in composition and literature.

Humanities: Four courses selected from any of the academic areas in the College of Humanities, but with no more than two courses in any one discipline.

Social Sciences: Two courses selected from the areas of Psychology, Anthropology, Sociology, Economics, Political Science and Geography.

Natural Sciences: Two courses in the natural sciences, or, one course if it has a laboratory associated with it.

Mathematics: Two courses.

Contemporary Issues: One course in the general area of Ethnic Studies.

COLLEGE OF SCIENCES
DEPARTMENT OF BIOLOGY

Thomas N. Fast, Ph.D., *Acting Chairman*

Professors: Francis R. Flaim, John S. Mooring
Associate Professors: Thomas N. Fast, Geraldine A. Tomlinson
Assistant Professors: Peter N. D'Eliscu, Leo J. Hombach, S.J., William R. Eisinger
Visiting Lecturers: Linda Caren, Christopher Harrold

The biology curriculum reflects the great expansion of, and changes in, the life sciences. It seeks to prepare its graduates for any area of the life sciences by emphasizing principles and avoiding premature specialization. All students take a basic series of courses and then elect further courses. This program allows a solid foundation in the liberal arts with a clear understanding of the basic principles and subject matter of biology while deferring specialization until the senior year, when the student is in a better position to decide upon an area of concentration. The proficient graduate is then prepared to enter professional or graduate school, to find employment in nearly any area of the life sciences, or, with additional education courses, to teach biology in secondary schools.

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*For students who intend to earn a Secondary Credential, four courses in English are required. One of these must be in Advanced English Composition.

Students who wish to make biology their major subject are required to fulfill the general requirements of the College of Sciences and complete the following for the Bachelor of Science degree:

1. Biology 30, 31, 32, 33, and 34; Chemistry 1, 2 and 35, 36.
2. Physics 4, 5, 6 or Physics 1 and 2.
3. Seven upper-division Biology courses which should be selected in consultation with the student's faculty advisor.
    a) Students will be required to complete at least one course from each of the following categories: Animal, Plant, Cell, and Population Biology. A single course may not satisfy the requirement in more than one category.
    b) All upper-division biology courses must be completed with at least a C average.
    c) Each candidate for a degree is required to pass a comprehensive examination in the major during the last year of residence. This examination may be oral, written or both and will be scheduled in the Spring Quarter. Those wishing to graduate in March, July or December may take it the preceding Spring Term or substitute a Graduate Record Examination in Advanced Biology.
4. Chemistry 10, and 37 are desirable for all and should be taken by those who plan professional studies in medicine, dentistry, or biology.
5. Although not a departmental requirement, students aspiring for graduate schools are strongly advised to study German and/or French.
6. Math 11, 12, and 13 (Calculus) are recommended to all prospective candidates to graduate or professional schools; Math 6 and 7 are satisfactory for other students.

Honors Program

An Honors student in Biology is eligible for Biology 195. He is also eligible to take Honors courses in other departments. In addition, if a student demonstrates competence in a particular field of biology, he may, with the Chairman's approval, carry out independent research in conjunction with regularly offered courses.

7. ANATOMY
Detailed study of mammalian tissues and organ systems with introduction to embryology. Non-majors only. Laboratory 30 hours.

8. PHYSIOLOGY
Elementary vertebrate physiology. Functions of organs and organ systems. Non-majors only. Laboratory 30 hours. Prerequisite: Biology 7 or equivalent.

30. CELLS AND HEREDITY
An introduction to cell biology including a descriptive study of plant and animal cells and their organelles as well as an examination of Mendelian genetics. Laboratory 30 hours. Prerequisite: Concurrent enrollment in Chemistry 1.

31. BOTANY
A survey of the plant kingdom combined with an introduction to plant morphology, anatomy, physiology and development. Laboratory 30 hours. Prerequisites: Biology 30, Chemistry 1 and concurrent enrollment in Chemistry 2.

32. ZOOLOGY
The animal kingdom, classification, embryology, anatomy and function of invertebrate and vertebrate organisms and organ systems. Laboratory 30 hours. Prerequisite: Biology 30 and Chemistry 2. Spring term only.

33. THE BIOLOGY OF POPULATIONS
A survey of the physical and biological factors that distribution and abundance of organisms. Laboratory 30 hours. Prerequisites Biology 31, 32 or equivalent. Fall term.

34. CELL BIOCHEMISTRY AND PHYSIOLOGY
An introduction to the metabolic processes of cells, including the biochemistry of cell components. Anabolism and catabolism of carbohydrates, lipids, proteins and nucleic acids. Laboratory 30 hours. Prerequisites: Biology 30, Chemistry 35 and 36 (Chemistry 36 may be taken concurrently) or permission of instructor.

80. INTRODUCTION TO MARINE SCIENCE
Biology of the marine environment, including a survey of marine organisms and their adaptations to various habitats. Physical and chemical factors in oceanography, marine pollution. Non-majors only; spring term only.

99. SPECIAL TOPICS
Investigation of a specific area or topic in the biological sciences. Open to non-majors as well as majors.

101. VERTEBRATE ANATOMY
Comparative structure, organization, adaptation, classification. Laboratory 60 hours. Prerequisite: Biology 30, 32 or equivalent. Fall Term only.

102. VERTEBRATE EMBRYOLOGY
Gametogenesis, fertilization, patterns of development in the vertebrate, organogenesis. Laboratory 60 hours. Prerequisite: Biology 32, 34 or equivalent.

104. BIOLOGY SEMINAR
Selected topics in biology. NCX* Prerequisite: Upper division standing in biology.

107. HISTOLOGY AND CYTOLOGY
Protoplasm, cells, basic tissue types, structure and histogenesis. Basic histological techniques. Laboratory 60 hours. Prerequisite: Biology 32, 34 or equivalent. Winter Term only.

110. GENETICS
Basic principles governing inheritance in plants and animals. Laboratory 30 hours. Prerequisite: Biology 30, 34 and Chemistry 35 and 36 or equivalents.

112. PATHOGENIC MICROBIOLOGY
Examination of pathogenic microorganisms, diseases, diagnosis, immunological techniques. Laboratory 60 hours. Prerequisite: 113.

113. GENERAL MICROBIOLOGY
Characteristics of microorganisms: bacteria, fungi, viruses, rickettsiae. Identification, isolation, morphology, physiology, bacterial genetics. Laboratory 50 hours. Prerequisites: Biology 30, 21 or 34, Chemistry 35, or permission of instructor.

115. DIFFERENTIATION AND DEVELOPMENT
Developmental phenomena as observed in cells and higher plants and animals with special emphasis on gene interaction in differentiation, morphogenesis, and growth. Laboratory 30 hours. Prerequisite: Biology 110 or equivalent. Winter Term only.

118. GENERAL PARASITOLOGY
Parasitic animals and plants, evolution and energetics of symbiotic interactions, medically important parasites and vectors, parasite-host adaptations and physiology. Laboratory and field work 60 hours. Prerequisite: Biology 32 or equivalent. Winter term only; alternates with Biology 140.

124. ANIMAL PHYSIOLOGY
A comparative study of organs and organ systems among vertebrates and invertebrates. Laboratory 60 hours. Prerequisite: Biology 32, 34 or equivalent. Spring Term only.

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*Exempted from challenge.

125. PLANT PHYSIOLOGY
An examination of the physiological processes of plants with an emphasis on current research in the field. Laboratory 30 hours. Prerequisite: Biology 31, 34 and Chemistry 35, 36.

128. PLANT DEVELOPMENT
Study of plant development with emphasis on the experimental approach and current research. Laboratory 30 hours. Prerequisite: Biology 31, 115, 125.

130. ECONOMIC BOTANY**
A critical analysis of plant food production potentials with special consideration of modern approaches to pest control. Prerequisite: Biology 31 or equivalent.

132. FIELD BOTANY
Field study of vascular plants, especially the seed plants of California; their identification, distribution, and ecology. Laboratory 60 hours. Prerequisite: Biology 31 or equivalent. Spring Term only.

140. INVERTEBRATE BIOLOGY**
Invertebrate physiology, anatomy, behavior, and ecology, with emphasis on the fauna of California. Laboratory and field work 60 hours. Prerequisite: Biology 32 or equivalent. Winter term only; alternates with Biology 118.

156. GENERAL ECOLOGY
Plant and animal populations, habitats, relationships, and adaptations. Laboratory and field work; community analysis, measurements of physical factors. Laboratory 30 hours. Spring Term only.

157. MARINE ECOLOGY
Biology of the marine environment, emphasizing community and population interactions with biotic and physical factors. Diversity, energetics, and population ecology of marine organisms. Laboratory and field work 60 hours. Prerequisite: Biology 33 or equivalent; fall term only.

161. ENVIRONMENTAL AND POPULATION BIOLOGY**
An examination of ecological relationships and evolutionary processes. Laboratory and field trips 30 hours. Spring term only.

169. HUMAN GENETICS
An examination of human biology with reference to heritable traits and of genetic methodology applied to research of human biology. Emphasis will be on topics of social and clinical interest. Prerequisite: Biology 110.

**Not offered in 1975-76.

171. CHEMICAL BIOLOGY
Chemistry of biologically important compounds. Reactions and interactions of amino acids, proteins, carbohydrates, lipids, nucleic acids, hormones, vitamins and steroids. Buffers and pH. Energy relationships in biological systems. Prerequisite: Biology 34 and Chemistry 37 or permission of instructor.

173. EVOLUTION
The basic principles of organic evolution, with emphasis upon the Modern synthetic Theory of Evolution. Prerequisite: Biology 110.

190. CONTEMPORARY ISSUES IN BIOLOGY
A specialized treatment of some aspect of biology which is of current interest to the biologist as well as to society in general. Prerequisites will be specified according to topic.

195. SPECIAL PROBLEMS
Supervised laboratory research culminating with a written report suitable for publication. Sustained for one year with credit given for one term. Prerequisite: Permission of the Department Chairman. NCX*

199. INDEPENDENT STUDY IN BIOLOGY
Detailed investigation of specific topics in biology under the close direction of a faculty member. Prerequisite: Permission of the Department Chairman. NCX*

COLLEGE OF SCIENCES
DEPARTMENT OF CHEMISTRY

William F. Sheehan, Ph.D., *Chairman*

Professors: Joseph F. Deck, William F. Sheehan
Associate Professors: Robert J. Pfeiffer, Michael A. Sweeney
Assistant Professor: Lawrence C. Nathan

The Department of Chemistry offers two baccalaureate degrees: (1) Bachelor of Science in Chemistry (Certified by the American Chemical Society), and (2) Bachelor of Science with a major in Chemistry.

Bachelor of Science in Chemistry (Certified)

This four-year curriculum provides graduates with the training necessary to enter work as chemists in various industrial and governmental laboratories or to transfer upon

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*Exempted from challenge.

graduation to institutions offering advanced degrees in Chemistry or Medicine. The American Chemical Society certifies that this degree meets all its recommended standards for the professional training of chemists. High School preparation should include algebra, geometry, trigonometry, physics, and chemistry.

Requirements for Bachelor of Sciences in Chemistry (Certified)

Requirements in Major. Chemistry 1, 3, 11, 35, 36, 37. Chemistry 101, 110, 112, 151, 152, 153, 180, and two additional upper division chemistry courses. One upper-division course in Physics, Mathematics, or Biology may be substituted for an upper-division course in Chemistry not explicitly specified.

Required Supporting Courses: Physics 4, 5, and 6. Mathematics 11, 12, and 13.

Recommended Supporting Course: Mathematics 21.

A grade-point average of 2.0 or more for all chemistry courses undertaken is required for admission to, or retention in, this program. A reading knowledge of German or Russian is ordinarily required, and the student must pass an examination in the language of choice administered by competent faculty.

HONORS PROGRAM

Students of superior ability who enroll for either chemistry degree may apply for admission to the Honors Program.

Bachelor of Science with a Major in Chemistry

This four-year program provides a liberal scientific degree with emphasis on the central science that lies between physics and biology. It offers chemical training for those planning to obtain work of a broad technical nature, either in scientific laboratories or in fields allied in chemistry. This program will suffice for careers in patent law, library work, teaching, or business or industries having chemical products. This program will adequately prepare the student for entrance into medical, dental or any other program dealing with the health, geological, agricultural, or materials sciences. High school preparation should include algebra, geometry, trigonometry, and chemistry.

Requirements for Bachelor of Science with a Major in Chemistry

Requirements in Major: Chemistry 1, 3, 11, 35, 36, 37, 110, 112, 151, 152. Besides Chemistry 110, 112, 151, and 152, a student must take five upper division chemistry courses, of which three may be biology, mathematics or physics, all in the upper-division. At least one of these five elective upper-division courses must have a laboratory. Students interested in the health sciences would select Biology as the science other than Chemistry. A grade-point average of 2.0 or more for all chemistry courses undertaken is required.

Required Supporting Courses: Physics 1, 2, or 4, 5 and 6. Mathematics 11, 12, and 13.

NB. The following pairs of courses are the same in content and scheduling except for laboratory work: 2 and 4, 31 and 35. Laboratory courses require a deposit for breakage and chemicals. See Student Expenses.

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1. GENERAL CHEMISTRY I

Atomic Structure. Periodic Properties and the Periodic Table. Nomenclature. Chemical Bonding. Molecular Geometry. Chemical Equations and Quantitative Relationships. Thermochemistry. Properties of Gases, Liquids, and Solids. Solutions. Chemistry of Oxygen and Hydrogen. Equivalent Weights. Oxidation and Reduction. Quantitative determinations in the laboratory exercises. Laboratory 30 hours. Fall Term. Prerequisites: High School Chemistry, Physics, Algebra, Geometry, and Trigonometry.

2. GENERAL CHEMISTRY II

Chemical Kinetics. Equilibrium. Acids and Bases. Ionic Equilibria. Chemical Properties of Metals. Electrochemistry. Properties and Structures of non-metals, and their compounds. Laboratory 30 hours. Prerequisite: CH I. Winter Term.

3. GENERAL CHEMISTRY (HONORS)

Electrochemistry. Non-Metals. Thermodynamics. Chemical Equilibrium. Chemical Kinetics. Acids and Bases. Metals. Industrial Chemistry. Laboratory 30 hours. Prerequisite: CH I. Winter Term.

4. GENERAL CHEMISTRY II FOR ENGINEERS

Same as Chemistry 2 but without laboratory. Prerequisite: CH I. Winter Term. NCX

7. THE ART OF CHEMISTRY

Atomic and Molecular structure. Laws of chemical change. Kinetic Theory. Periodic Table. Chemical Reactions. The nucleus and nuclear reactions. For the non-science student. Laboratory 30 hours. Winter Term.

8. CHEMISTRY IN EVERYDAY LIVING

Atomic structure. Water. Acids and bases. Compounds of carbon. Food chemistry. Plastics. Biochemical reactions. The role of Chemistry in modern life. Laboratory 30 hours. Prerequisite: High school Chemistry or CH 7. Spring Term.

9. CHEMISTRY IN EVERYDAY LIVING

Same as Chemistry 8 but without laboratory. Prerequisite: High school Chemistry or equivalent. Lectures 75 min. daily. Summer Session only. NCX.

10. QUANTITATIVE ANALYSIS FOR BIOLOGISTS
Theories and practice of acidimetry, alkalimetry, and volumetric precipitations. Introduction to gravimetric analysis. Introduction to theories of oxidimetry and reductimetry. Laboratory 40 hours. Prerequisite: CH 2. Spring Term.

11. QUANTITATIVE ANALYSIS FOR CHEMISTS
Theories and practice of acidimetry, alkalimetry and volumetric precipitations. Introduction to gravimetric analysis. Introduction to theories of oxidimetry and reductimetry. Laboratory work will also include elementary instrumentation. Laboratory 80 hours. Prerequisite: CH 2 or 3. Spring Term.

30. SURVEY OF ORGANIC CHEMISTRY
A survey of the more important classes of organic compounds with emphasis on materials of interest to the students of the biological sciences. Laboratory 30 hours. Intended for students not majoring in chemistry and not planning to take additional courses in organic chemistry. Prerequisite: CH 1 or 7. Spring Term.

31. ORGANIC CHEMISTRY I
Same as Chemistry 35, but without laboratory. NCX.

35. ORGANIC CHEMISTRY I
Structure and bonding in organic compounds. Reactions of alcohols, alkyl halides, alkenes, ethers, aldehydes and ketones. Stereochemistry. Spectroscopy. Introduction to reaction mechanisms and synthesis. Laboratory 40 hours. Prerequisite: CH 2 or 3. Fall Term.

36. ORGANIC CHEMISTRY II
Continued reactions of aldehydes and ketones, dienes, carboxylic acids and derivatives, amines and sulfides. Introduction to concept of aromaticity and reactions of aromatic compounds. Carbohydrates, amino acids, proteins. Continued synthesis and reaction mechanisms. Lab 40 hrs. Prereq: CH 31 or 35. Winter term.

37. ORGANIC CHEMISTRY III
Further reactions of aromatic compounds. Si and P chemistry. Advanced stereochemistry. Introduction to heterocycles and physical organic chemistry. Lab 40 hrs. Prereq: CH 36. Spring term.

99. SPECIAL TOPICS
Theoretical or experimental study or research supervised by a faculty member whose permission must be received before registration for this course. Any Term. NCX.

101. ADVANCED INORGANIC CHEMISTRY
Atomic structure. Periodic Law, Chemical bonding. Molecular geometry. Crystal Structure. Chemical properties of the elements. Symmetry and group

theory. Coordination chemistry. Synthetic inorganic chemistry. Laboratory 30 hours. Prerequisites: CH 11, 36 and 152. Spring Term.

110. INSTRUMENTAL METHODS OF ANALYSIS
Principles and use of instruments. Ultraviolet, visible, infrared, raman, nuclear magnetic resonance, and atomic absorption spectroscopy. Selected electroanalytical methods. Magnetic susceptibility. Theory of X-ray diffraction. Introduction to computer methods in chemistry. Laboratory 45 hours. Prerequisites: CH 11, 37, 152. CH 101 is recommended. Winter Term.

112. ADVANCED QUANTITATIVE ANALYSIS
Advanced volumetric and gravimetric analysis, and aspects of instrumental analysis emphasizing quantitative analysis: Oxidation-reduction equilibria and electrochemical analysis by both instrumental and non-instrumental techniques. Complex ion titrations, instrumental and non-instrumental. Gravimetric analysis. Gas chromatography, theory and practice. Mass spectrometry, theory and workshop. Laboratory 45 hours. Prerequisite: CH 10 or 11. Fall term.

134. ADVANCED ORGANIC CHEMISTRY I
Synthesis and properties of five and six-membered rings with one heterocyclic atom. Brief introduction to other classes. Prerequisites: CH 37. Fall Term. NCX

135. ADVANCED ORGANIC CHEMISTRY II (PHYSICAL ORGANIC CHEMISTRY)
Molecular orbital treatment of organic molecules. Mechanisms. Structure/reactivity relationships. Photochemistry. Conservation of orbital symetry. Applications of absorption spectroscopy to organic compounds. Prerequisite: CH 37, 152. Fall or Winter Term. NCX.

136. ADVANCED ORGANIC CHEMISTRY III
Synthesis, biosynthesis and structure determination of acetogenins, isoprenoids and alkaloids. Emphasis on reaction mechanisms and stereochemistry. Prerequisite: CH 37. Spring term. NCX.

140. BIOCHEMISTRY
Nucleic acids, proteins, carbohydrates, lipids. DNA replication, enzymes, bioenergetics, membrane structure. Intermediary metabolism, including biological reaction mechanisms. Prerequisite: CH 36. Winter Term. NCX.

150. SURVEY OF PHYSICAL CHEMISTRY
States of matter. Thermodynamics and Thermochemistry. Chemical Kinetics. Electrochemistry. Macromolecules. Radiochemistry. Intended for students majoring in the biological sciences. A term course in calculus is advisable. Prerequisite: CH 10; 31 or 35. Winter Term. NCX.

151. PHYSICAL CHEMISTRY I
Equations of state of pure fluids. Energy and enthalpy. Thermochemistry. Entropy. Free Energy. Chemical potential. Phase Rule. Problems. Laboratory 60 hours. Prerequisites: CH 10 or 11. Mathematics 13. Physics 2 or 6. Fall Term.

152. PHYSICAL CHEMISTRY II
Colligative Properties. Chemical equilibrium. Chemical kinetics. Migration of charged species. Electrochemical cells. Surface Phenomena. Introductory quantum mechanics. Problems. Laboratory 60 hours. Prerequisite: CH 151. Winter term.

153. PHYSICAL CHEMISTRY III
Quantum mechanics. Particle in box. Harmonic oscillator. Hydrogen atom. Variation method. Virial theorem. Molecular structure and spectroscopy. Statistical mechanics. Reaction rate theory. Problems, small and gigantic. Prequisite: CH 152. Recommended prerequisite: Math 021. Spring Term. NCX.

154. ADVANCED PHYSICAL CHEMISTRY I
Wave phenomena and Equations describing them. Schrödinger Equation. Nuclear Chemistry. Radiochemistry. Prerequisite: CH 153. Spring Term. NCX.

165. CHEMISTRY IN NORTH AMERICA
Historical and Scientific Methods. Place of North American Chemistry in world chemistry. Chemical arts of Aztecs, Pueblos, colonists. Development of tanning processes to poromerics. Growth of chemical industry in North America to present. Chemists of North America. Chemistry as a profession. NCX.

180. UNDERGRADUATE RESEARCH AND SEMINAR
Individual research for senior chemistry majors under direction of faculty. Chemical and/or computer laboratory to be arranged. A written report suitable for publication and oral presentation of that report in seminar are required for credit. Regular attendance at seminars is required. Prerequisite: CH 152. Any term.

COLLEGE OF SCIENCES
BACHELOR OF COMBINED SCIENCES

Dr. Joseph F. Deck, *Director*
Professor of Chemistry

Aware that students now aspire for a real responsibility in getting a true and useful education, the College of Sciences offers its students a curriculum that emphasizes adaptability and freedom. This curriculum would challenge any student to make what

he can of the full facilities and all the faculty of the College of Sciences. It incorporates features that respond to real student needs and desires and to the demands that the modern world makes on graduates. The completion of this curriculum will merit a Bachelor of Combined Science Degree (B.C.S.).

Some particular aims of the new program include: 1) appealing alternatives to regular departmental majors, 2) a liberal science degree for modern man in a modern scientific world, 3) an opportunity of keeping open for an unusually long period at Santa Clara the various options of the undeclared science major, 4) a non-specific scientific background for modern jobs that often require only a casual understanding of scientists ability in the traditional sense, as in advising management, legislation, courts, governmental agencies on food and drugs and so on, 5) excellent preparation for the student contemplating the health sciences, such as medicine, dentistry, etc. who has no specific desire for completing programs in the conventional science programs now offered.

The program is so planned that a student would be qualified to take *upper division courses* offered by one or several departments of the College without necessarily establishing a regular departmental major. This scheme reinforces the student's early scientific interests as early as is consistent with reasonable loads, electives, and so on so that upper division work of the preferred kind of science can be started as early as year 3. Yet, by the end of the winter term of year 3, this plan opens the way to any upper division course in the College. This upper-division freedom is admired by students and faculty and distinguishes this plan from most others.

Requirements for Bachelor of Combined Sciences, B.C.S.

Required Courses in the Natural Sciences:
Chemistry 001, 002, 030 (or in place of 030 the 3-term course sequence in organic chemistry if needed), Mathematics 011, 012, and 013, statistics, Physics 004, 005, and 006, Biology 030, 032, and 034.

Required Courses in the Social Sciences:
Economics 001, 002, Psychology 010, and 011, Sociology 001, 018, and 019, Political Science 001, 002.

Required Courses in the Humanities:
English (two terms), Religious Studies (three terms). Twelve (12) upper division courses are required for the degree, seven of which must be taken from the College of Sciences. To complete the program of 40 courses required for graduation, courses should be elected in the Humanities.

CURRICULUM FOR BACHELOR OF COMBINED SCIENCES DEGREE NATURAL SCIENCES

Fall	Winter	Spring
Chemistry 001	Chemistry 002	Math 013
Economics 001	Economics 002	Religious Studies

English 001 Math 011	English 002 Math 012	Statistics Physics 004
Biology 030 Elective or Chem 035) Sociology 001 Physics 005	Religious Studies Elective (or Chem 036) Psychology 010 Physics 006	Biology 032 Elective (or Physics 007 Psychology 011 Chemistry 030 or 036
Political Sci. 001 or 002 Sociology 018 Elective*	Biology 034 Sociology 019 Elec.* (or Pol. Sci. 002)	Religious Studies (U/D) Elective* Elective*
Elective* Elective* Elective*	Elective* Elective* Elective*	Elective* Elective* Elective*

CURRICULUM FOR BACHELOR OF COMBINED SCIENCES DEGREE
SOCIAL SCIENCES

Fall	Winter	Spring
Chemistry 001 Economics 001 English 001 Sociology 001	Chemistry 002 Economics 002 English 002 Psychology 010	Math 001 Religious Studies Statistics Psychology 011
Political Science 001 Elective Math 011 Sociology 018	Political Science 002 Elective Math 012 Sociology 019	Religious Studies Math 013 Physics 004 Chemistry 030
Biology 030 Physics 005 Elective*	Biology 031 Physics 006 Elective*	Religious Studies (U/D) Biology 032 Elect.* (or Phys. 007)
Elective* Elective* Elective*	Elective* Elective* Elective*	Elective* Elective* Elective*

*Seven of these 12-13 electives must be upper division courses in the College of Sciences; five more upper division courses are also required for graduation. Total quarter units must be at least 175.

COLLEGE OF SCIENCES
DEPARTMENT OF ECONOMICS

Mario L. Belotti, Ph.D., *Chairman*

Professors: Mario L. Belotti, Thaddeus J. Whalen, Jr.
Associate Professors: William Donnelly, S.J., John M. Heineke
Assistant Professors: Richard T. Coz, S.J., Henry Demmert,

Daniel T. Dick, Robert E. Looney, Marshall Medoff
Acting Assistant Professor: Frederick Nold

Students majoring in Economics in addition to fulfilling the general requirements for a Bachelor of Science degree, must complete the following departmental requirements:

Freshman and Sophomore years: Economics 1 and 2 (Principles of Economics), Economics 55 (Statistics—Quantitative Methods 40 may be substituted), Mathematics 11 and 12 (Analytical Geometry and Calculus 11 and 12). A student may petition to substitute two other math courses for Math 11 and 12.

Junior and Senior years: Economics 114, 115, and 116. Six upper-division economics electives. (Students may petition to substitute one of the upper-division economics electives with another course.)

SPECIAL PROGRAMS

Emphasis in Mathematical Economics

The Departments of Mathematics and Economics offer jointly a program providing an emphasis in mathematical economics. Students wishing to participate will major in either mathematics or economics but will pursue a special course of study to emphasize the utilization of mathematics in the study of economics; participation in this course of study will be noted on the student's transcript. This program will be especially valuable for students planning graduate work and/or careers in actuarial science, economics, mathematics, operations research, systems engineering and related fields. The core of the program consists of Economics 114, 115, 170, 171 and 177; Mathematics 21, 22, 52, 53, 102; and either Economics 174 or Mathematics 122, 123. Full descriptions of the program may be obtained from the Chairman of the Department of Economics or Mathematics.

Emphasis in Political Economy

The Departments of Economics and Political Science offer jointly a program providing an emphasis in Political Economy. Students wishing to participate will major in either economics or political science but will pursue a special course of study which emphasizes the interdependence of economics and political science in the analysis and solution of current domestic and world economic problems. Participation in this program will be noted in the student's transcript. This program will be especially valuable to students planning graduate work and/or careers in public affairs, law, economics and political science. The core of the program consists of Economics 114, 115, 116, 118 and 120; Political Science 111, 117, 149, 165 and 167. Full descriptions of the program may be obtained from the Chairman of the Department of Economics or Political Science.

Honors Program

In collaboration with other departments of the Social Science Division, the Department of Economics offers to its best students an Honors Program consisting of special seminars and independent studies. Students will be admitted into the Honors Program only upon faculty recommendation.

Lower Division Courses

1. PRINCIPLES OF ECONOMICS I
An introduction to the general principles, terminology, and methods of macroeconomics.

2. PRINCIPLES OF ECONOMICS II
An introduction to the general principles, terminology, and methods of microeconomics.

12. AMERICAN ECONOMIC HISTORY
A study of the economic history of the history of the United States with special emphasis upon basic economic organizations, such as the business enterprise, the labor union, and the economic functions of government.

20. CURRENT ECONOMIC ISSUES I
A study of contemporary macroeconomic problems.
Prerequisite: Economics 1.

21. CURRENT ECONOMIC ISSUES II
A study of contemporary microeconomic problems. Prerequisite: Economics 2.

55. STATISTICS
Introduction to statistical methods and techniques of elementary statistical analysis.

Upper Division Courses (Economics 1 and 2, or permission of the instructor, is required for all upper-division courses)

114. MICROECONOMICS I
An introduction to the theory of demand production, cost and pricing.

115. AGGREGATE ECONOMIC THEORY
The focus of this course is on the macro, or aggregative aspects of the economy. It emphasizes modern macroeconomic models which aim at explaining the level of output, employment and prices.

116. HISTORY OF ECONOMIC THOUGHT
A study of the evolution of economic ideas and their influence on the development of economic practices. Prerequisites: Economics 114 and 115.

117. EUROPEAN ECONOMIC HISTORY
A study of the preindustrial environment and industrial growth patterns of the western European countries.

118. COMPARATIVE ECONOMICS SYSTEMS
In this course the performance of market economies is contrasted to that of centrally planned, non-market economies and to that of "mixed" economies. The question of performance is addressed from both a theoretical and a practical point of view.

120. ECONOMICS OF THE PUBLIC SECTOR
In this course microeconomic theory will be applied to the analysis of the public sector. Prerequisites: Economics 114.

121. MICROECONOMICS II
The purpose of this course is to acquaint the student with applications of microeconomic theory to familiar economic problems.

122. MONEY AND BANKING
A theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis upon the relationship between the monetary and banking system and the rest of the economy.

124. INDUSTRIAL ORGANIZATION
A microanalysis of the structure, conduct, and performance of American industry. Prerequisite: Economics 114.

125. WELFARE ECONOMICS
A study of the principles by which economists evaluate the social desirability of alternative market arrangements. Prerequisite: Economics 114.

128. BUSINESS CYCLES AND FORECASTING
A study of the nature and causes of economic instability in an industrial economy.

129. ECONOMIC DEVELOPMENT
An analysis of the historical and theoretical context underlying present efforts to increase the rate of economic growth in underdeveloped countries.

130. LATIN AMERICA ECONOMIC DEVELOPMENT
An examination of the economic development of Latin American countries with particular emphasis on the relationships between economic growth and the social, political and economic structures of these countries.

131. AFRICA ECONOMIC DEVELOPMENT
A study of the economic development of Africa, with particular emphasis upon the relationships between economic growth and the social, political and economic structures of these countries.

132. ASIA ECONOMIC DEVELOPMENT
A study of the economic development of Asian countries with particular emphasis upon the relationships between economic growth and the social, political, and economic structures of these countries.

133. SOVIET ECONOMIC DEVELOPMENT
A study of the economic development of the Soviet Union since the Communist Revolution.

134. GROWTH DYNAMICS AND PLANNING
A study of various theoretical growth models and their application to development, planning and project evaluation. Prerequisites: Economics 114 and 115.

140. URBAN ECONOMICS
This course examines the economics of urban problems with emphasis on location and land use, the housing market, and transportation. The interaction of location and land use decisions with the housing market and the transportation system is analyzed with reference to the amelioration of urban problems. Prerequisite: Economics 114 or permission of instructor.

141. ENVIRONMENTAL ECONOMICS
A course in the application of basic economic principles to question concerned with the appropriate use of environmental resources. Emphasis is on the role of cost/benefit analysis in designing environmental policy. Prerequisite: Economics 114.

150. LABOR ECONOMICS
A study of labor productivity, incomes, employment and how these are affected by labor organizations and labor legislation.

160. THE ECONOMICS OF POVERTY
A study of the economic conditions which lead to poverty and possible alternative policies directed at modifying such conditions.

170. MATHEMATICAL ECONOMICS I
In this course many familiar micro and macro economics models are generalized and reformulated as mathematical systems. Attention is focused on exploring the properties of these models using mathematical techniques. Emphasis is primarily on static models. Prerequisites: Mathematics 11 and 12, Economics 114 and 115, or consent of professor.

171. MATHEMATICAL ECONOMICS II
Analysis of dynamic economic models. Differential and difference equations are used to explore economic growth, technological change and other topics in both macro and micro economics. Selected topics from the economics of uncertainty are also discussed. Prerequisites: Mathematics 11 and 12, Economics 114 and 115, or consent of professor.

174. STATISTICAL ANALYSIS
A course designed to acquaint the student with the foundations of statistical research methods. Topics include distribution theory, estimation, testing, and prediction, with special emphasis upon multivariate models. Prerequisites: Mathematics 11 and 12 or equivalent.

177. ECONOMETRICS
An introduction to the techniques used by economists to estimate and test economic relationships. Focus is on regression analysis, time series problems and estimation of multiple equation models. Prerequisites: Economics 174 or equivalent.

180. INTERNATIONAL ECONOMICS
An analysis of the theory of international trade, of problems in balance of payments adjustments, and of international economic policies. Prerequisite: Economics 114.

188. JUNIOR HONORS SEMINAR
Modern economic theories and problems. Reserved for Honors students.

189. SENIOR HONORS SEMINAR
Modern economic theories and problems. Reserved for Honors students.

190. INDEPENDENT STUDY

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

COLLEGE OF SCIENCES
DEPARTMENT OF MATHEMATICS

Gerald L. Alexanderson, M.S., *Chairman*

Professors: Gerald L. Alexanderson, Karel L. de Bouvere, S.C.J.
Assistant Professors: Vladimir Drobot, Grant A. Fraser,
Leonard F. Klosinski, David E. Logothetti,
Jean J. Pedersen
Visiting Assistant Professor: Charles A. Ryavec
Lecturers: Alice J. Kelly, Robert C. McCarty,
Veril L. Phillips

The Department of Mathematics offers work leading to a major or a minor in mathematics, as well as required and elective courses for students majoring in other fields. The major may be pursued with three principal goals in mind: preparation for graduate work in mathematics or other related fields leading to advanced degrees; preparation for secondary school teaching of mathematics; preparation for a career in research for industry or government.

Graduate work is offered in the Department only for the degree Master of Science in the Teaching of Mathematics; for a description of this degree, see the *Graduate School of Humanities Bulletin*. For a description of the degree Master of Science in Applied Mathematics offered by the School of Engineering, see the *Graduate Programs Bulletin of the School of Engineering*. In addition, the major in mathematics may be taken with an emphasis in mathematical economics.

Requirements for the Bachelor of Science Degree

Students majoring in mathematics are required to take lower-division courses numbered 11, 12, 13, 21, 52, and 53, together with an approved selection of seven upper-division courses (numbered above 100). The upper-division courses must include 102 and either 111 or 176 (or both.) Students planning graduate work in pure mathematics should plan to choose 111; those planning work in computer science or other applications may substitute 176. In addition, students planning to go on to graduate school should take 105, 112, 153 and 154. Specific admission to upper division standing must be obtained by the student before he is allowed to undertake the more advanced courses; this permission will be granted only to students whose performance in lower-division courses clearly indicates the aptitude and interest necessary for advanced work.

Majors in mathematics are required to take Physics 4 to satisfy their natural sciences requirement. An additional course, usually Physics 5 is required of all mathematics majors. This additional course may, however, be Economics 111 or 112 if the student has a special interest in mathematical applications in the social sciences or economics.

Majors intending to become teachers of mathematics in secondary schools may substitute Physics 1 and 2 for the above courses, with the approval of the Chairman of the Department.

Physics 131 and 132, Introduction to Mathematical Physics I and II, may be taken to satisfy departmental requirements in mathematics.

Majors in mathematics will be required to demonstrate ability to read a mathematical work in French, German, or Russian prior to graduation.

A major in mathematics with emphasis in computer science is offered by the Department to students planning careers in research in government or industry. Students interested in course outlines for this major should request such a list from the Chairman of the Department. Outlines are also available describing the major leading to the teaching credential of the State of California.

Emphasis in Mathematical Economics

The Departments of Mathematics and Economics offer jointly a program providing an emphasis in mathematical economics. Students wishing to participate will major in either mathematics or economics but will pursue a special course of study to emphasize the utilization of mathematics in the study of economics; participation in this course of study will be noted on the student's transcript. This program will be especially valuable for students planning graduate work and for those planning careers in actuarial science, economics, mathematics, operations research, systems engineering and related fields. The core of the program consists of Economics 114, 115, 170, 171, 177; Mathematics 21, 22, 52, 53, 102; and either Economics 101 or Mathematics 122, 123. Full descriptions of the program may be obtained from the Chairmen of the Departments of Economics or Mathematics.

Honors Program

The Department maintains a program for the discovery, encouragement and development of mathematical talent among undergraduates. This program includes special sections, seminars, individual conferences and directed study guided by selected faculty members. An active Undergraduate Research Participation Project is directed by members of the Department.

1. ALGEBRA AND TRIGONOMETRY
Topics in college algebra and trigonometry. Intended for students who wish to take further work in mathematics. Permission to enroll must be obtained from the Chairman of the Department.

2. MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS
Topics include sets, number systems, inequalities and equations, and other basic topics in modern mathematics.

3. THE NATURE OF MATHEMATICS
A course designed for liberal arts students. Topics will be chosen to allow students to participate in the discovery and development of mathematical ideas. Some discussion of the history of mathematics is included.

6. MATHEMATICAL ANALYSIS FOR SOCIAL SCIENCE I
An introduction to finite mathematics with applications to the social sciences. Sets, logic, combinatorial problems, probability, vectors and matrices.

7. MATHEMATICAL ANALYSIS FOR SOCIAL SCIENCE II
An introduction to differential and integral calculus with applications to the social sciences. Mathematics 7 and Mathematics 11 cannot both be taken for credit. Prerequisite: 6 or permission of the instructor.

8. INTRODUCTION TO STATISTICS
Elementary topics in statistics chosen from: descriptive statistics, probability, random variables and distributions, sampling, estimation, hypothesis testing, regression and correlation. Prerequisite: 1 or equivalent.

11. ANALYTIC GEOMETRY AND CALCULUS I
Differentiation and applications, integration. Mathematics 7 and Mathematics 11 cannot both be taken for credit. Prerequisite: four years of high school mathematics (including trigonometry) or satisfactory grade in 1.

12. ANALYTIC GEOMETRY AND CALCULUS II
Continuation of 11. Applications of integration, transcendental functions, determinants and linear equations.

13. ANALYTIC GEOMETRY AND CALCULUS III
Polar coordinates, hyperbolic functions, vectors, parametric equations, solid analytic geometry, partial differentiation. Prerequisite: 12.

21. CALCULUS AND DIFFERENTIAL EQUATIONS
Multiple integration. Infinite series. Complex numbers and functions. Introduction to ordinary differential equations. Prerequisite: 13.

22. DIFFERENTIAL EQUATIONS
Use of series, numerical and transform methods in solving differential equations. Introduction to partial differential equations. Prerequisite: 21.

32. MATHEMATICAL LOGIC
Introduction to formal methods in elementary logic; propositional calculus and simple predicate calculus. Connections with set theory and algebra. Recommended as an elective for mathematics majors and other students planning to pursue further work in logic and foundations. Recommended for 133.

52. INTRODUCTION TO MODERN ALGEBRA
Groups, fields, integral domains, applications to number theory. Polynomials and polynomial equations.

53. LINEAR ALGEBRA
Vector spaces, linear transformations, algebra of matrices, quadratic forms, characteristic equations.

99. LOWER-DIVISION SEMINARS
Basic techniques of problem solving and topics in algebra, geometry, and analysis.

101. A SURVEY OF GEOMETRY
Topics from projective, advanced Euclidean and non-Euclidean geometries.

102. ADVANCED CALCULUS
Vector calculus, functions of several variables, elliptic integrals, line integrals, uniform convergence, introduction to Fourier series.

105. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE
Analytic functions, Cauchy integral theorems, power series, conformal mapping. Riemann surfaces. Prerequisite: 153.

107. MODERN ELEMENTARY MATHEMATICS I
Designed for in-service secondary school teachers. Topics in elementary mathematics treated in a manner emphasizing the underlying structure and fundamental concepts. (107 and 108 may not be taken to fulfill the requirements of a major in mathematics.)

108. MODERN ELEMENTARY MATHEMATICS II
A continuation of 107. This course may be taken independently of 107 upon the consent of the instructor.

111. ABSTRACT ALGEBRA I
Topics from the theory of groups. Prerequisites: 52 and 53.

112. ABSTRACT ALGEBRA II
Rings and ideals, algebraic extensions of fields, Galois Theory. Prerequisite: 111.

113. TOPOLOGY
Set theory insofar as pertinent to the course. Topological spaces, continuous functions, product spaces. Separability and compactness. Metric spaces and metric topologies.

122. PROBABILITY AND STATISTICS I
Axioms and postulates; combinatorial problems; conditional probability; independence; random variables, distributions. Prerequisite: 21.

123. PROBABILITY AND STATISTICS II
Expectation; characteristic functions; infinite sequences of random variables; point estimation; statistical hypotheses; confidence intervals.

133. LOGIC AND FOUNDATIONS
Deductive theories. Theories and models. Consistency, completeness, decidability. The theory of models. The cardinality of models. Some related topics of metamathematics and foundations. This course is open to upper division students of science and mathematics and to philosophy majors having sufficient logical background. Prerequisite: 32 or equivalent.

134. SET THEORY
Naive set theory. Cardinal and ordinal arithmetic. The axiom of choice and the continuum hypothesis. Axiomatic set theory.

144. PARTIAL DIFFERENTIAL EQUATIONS
Special topics in higher mathematics useful in applications to the physical sciences, such as special functions of mathematical physics. Fourier series, partial differential equations, and boundary value problems.

153. INTERMEDIATE ANALYSIS I
A rigorous investigation of the real number system. Concepts of limit, continuity, differentiability of functions of one real variable, theorems of differential and integral calculus. Prerequisite: 102.

154. INTERMEDIATE ANALYSIS II
A continuation of 153.

155. ORDINARY DIFFERENTIAL EQUATIONS
Existence and nature of solutions; oscillation theory, orthogonal functions. Partial differential equations. Prerequisite: 102.

164. COMPUTER SCIENCE I
Machine language programming and FORTRAN. Mathematical logic and logical design of a digital computer. Prerequisite: 102. NCX

165. COMPUTER SCIENCE II
Advanced programming, introductory simulation techniques, linear programming. Prerequisite: 164 or equivalent. NCX

166. NUMERICAL ANALYSIS
Interpolation formulas. Numerical differentiation and integration. Numerical solution of algebraic, transcendental, and differential equations. Prerequisite: 102.

168. DIFFERENTIAL GEOMETRY
Introduction to curves and surfaces. Differential forms, Frenet formulas, frame fields, differentiation on surfaces. Prerequisite: 53.

170. DEVELOPMENT OF MATHEMATICS
A selection of mathematical concepts given with their historical context. Upper-division standing in a science major is required.

172. PROBLEM SOLVING
Use of induction, analogy, and other techniques in solving mathematical problems.

175. THEORY OF NUMBERS
Fundamental theorems on divisibility, primes, congruences. Number theoretic functions. Diophantine equations. Quadratic residues. Partitions.

176. COMBINATORIAL ANALYSIS
Permutations and combinations, generating functions, recursion relations and a selection of topics from combinatorial geometry, graph enumeration, Polya counting theorem.

179. MATRIX THEORY
Linear transformations, matrices and determinants, quadratic forms, Cayley-Hamilton Theorem.

190-195. INDEPENDENT STUDY
Reading and investigation for superior students under the direction of a staff member.

199. UPPER DIVISION SEMINARS
Advanced topics in algebra, geometry, or analysis. Research projects.

(Note: Some upper-division courses, e.g., 133, 134, 144, 155, 164, 165, 166, 172, 175, 176, are given only in alternate years.)

COLLEGE OF SCIENCES
DEPARTMENT OF PHYSICS

William T. Duffy, Jr., Ph.D., *Chairman*

Professors: William A. Barker II,
John B. Drahmann, *Dean,* College of Sciences,
William T. Duffy, Jr., Carl H. Hayn, S.J.,
Philip T. McCormick
Professorial Lecturer: Alexis I. Mei, S.J.
Visiting Assistant Professor: Frederick M. Weinhaus

The Department of Physics offers a program of lecture and laboratory instruction designed to satisfy the needs of three categories of students: the student majoring in physics; the science or engineering student who is not a physics major but in need of a solid introduction to physics; the business, humanities, or social science student who needs a descriptive introductory course.

Physics 1 and 2 are a non-calculus introductory sequence particularly suitable for premedical and predental students. Physics 3 and Physics 50 are designed to provide mainly descriptive introductions to astronomy and earth science, respectively. Physics 4, 5, 6 and 7 are designed for the science or engineering major to provide a thorough introduction to classical and modern physics, making extensive use of the calculus.

The physics *major* is usually pursued with one of three goals in mind: graduate study in physics or related fields, professional employment by industry or government, or secondary school teaching in physical science. The undergraduate major program in physics is appropriate preparation for graduate study in the fields of physics, astronomy and astrophysics, biophysics, environmental science, geological science and geophysics, medical physics and medicine, patent law, physical science teaching, and oceanography.

Requirements for the Bachelor of Science in Physics

The physics major is required to take the introductory sequence Physics 4, 5, 6, and 7 and a minimum of eight additional physics courses. The usual major program will include Physics 70, 101, 102, 111, 112, 121, 122 and 170. A sequence of methematics courses, normally consisting of Mathematics 11, 12, 13, 21 and 22, is taken concurrently with the introductory physics sequence. Chemistry 1 and 2 are also required.

Although not required, it is suggested that the physics major consider taking a language course sequence in either Russian, German, or French. This is useful both from the standpoint of reading the literature of physics and to satisfy the language requirements of graduate schools. It is also suggested that a course be taken in the use of digital computers. Early completion of such a course will facilitate the student's subsequent use of the campus computer facility.

Additional advanced physics and mathematics courses are recommended for those planning to pursue graduate study in physics. Students preparing for careers in biophysics, medical physics, or medicine should take Chemistry 35, 36 and 37 as well as selected additional courses in biology and chemistry. Students with broad interests crossing into other disciplines may assemble curricula including a strong minor in such fields as biology, electrical engineering and computer science, chemistry, mathematics, or philosophy. Specialized curricula should be developed in consultation with the student's departmental faculty advisor. Additional details concerning specific curricula are available in the publication *Information for Physics Majors*.

Honors Program and Research Participation

Freshman applicants planning to major in physics may also consider separate application for admission to the Honors Program. Among other benefits, honors students are admitted to special honors sections of certain courses offered by the Departments of Economics, English, History, Mathematics, Philosophy, and Religious Studies.

Undergraduate research participation and independent study opportunities are available for physics majors under the direction of physics faculty. Research in the Department is currently funded by NASA and the National Science Foundation. Course credit for undergraduate research participation is available under Physics 90 and 190; course credit is provided for independent study under Physics 99 and 199. These courses are specifically limited to physics majors or honors students with minimum cumulative grade-point averages of 3.00.

1. GENERAL PHYSICS I
The nucleus and radioactivity. Vectors. Newtonian laws of motion. Gravitational force. Linear and angular momenta. Collisions. Work and Energy. Special relativity. Fluid statics. Wave phenomena. Vibrating systems. Sound. Resonance. Doppler effect. Laboratory. Fall term.

2. GENERAL PHYSICS II
Electrostatics. Ohm's law. Electric potential and circuits. Power and Energy. Electromagnetic induction. Alternating voltages and circuits. Electronics. Geometric and physical optics. Quantum phenomena. Energy levels. Semiconductors. Ideal gases and kinetic theory. Temperature. Thermal expansion. Heat transfer. Phase diagram. Laboratory. Prerequisite: 1. Winter term.

3. INTRODUCTION TO ASTRONOMY
Descriptive study of the solar system. Stellar astronomy. The galaxy. The universe. Restricted to students not majoring in physics, chemistry, biology or engineering. Fall term and Spring term.

4. PHYSICS FOR SCIENTISTS AND ENGINEERS I
Measurement. Vectors. Equilibrium conditions. Newton's Laws. Constant acceleration. Special relativity. Particle dynamics. Work and energy. Momentum. Collisions. Rigid body rotational motion. Laboratory. Prerequisites: Mathematics 11, 12. (Mathematics 12 may be taken concurrently.) Spring term.

5. PHYSICS FOR SCIENTISTS AND ENGINEERS II
Oscillatory motion. Gravitation and fields. Electrostatics. Gauss' law. Potential. D.C. circuits. Dielectrics. Magnetic fields. Magnetic induction effects. Magnetic materials. A.C. circuits. Electromagnetic waves. Laboratory. Prerequisites: 4, Mathematics 13 (Mathematics 13 may be taken concurrently.) Fall term.

6. PHYSICS FOR SCIENTISTS AND ENGINEERS III
Waves, reflection and refraction. Interference. Diffraction. Optical instruments. Resonance. Quantum phenomena. Ideal gases. Thermal properties. Thermodynamics. Laboratory. Prerequisite: 5. Winter term.

7. PHYSICS FOR SCIENTISTS AND ENGINEERS IV
Elementary modern physics. Special relativity. Quantum effects. Hydrogen atom. Many-electron atoms. X-rays. Nuclear structure. Nuclear reactions. Molecular and solid-state physics. Laboratory. Prerequisite: 6. Spring term.

50. EARTHQUAKES AND OCEANS
A brief study of the nature, causes and effects of earthquakes; the drift of continents, geo-magnetism, the structure of the ocean floor, isostasy, tidal forces and the role played by these as remote causes of earthquakes.

70. ELECTRONIC CIRCUITS FOR SCIENTISTS I
Linear electric circuits. Phasor analysis, transients and Fourier series. Network theorems. Junction diodes, junction triodes and field effect transistors. Voltage and power amplifiers. Laboratory. Prerequisite: 6. Spring term.

90. UNDERGRADUATE PHYSICS RESEARCH
Departmental work under close professorial direction on research in progress. Permission of the professor directing the research must be secured before registering for this course. Restricted to physics majors and honors students with a 3.00 or better grade-point average.

99. INDEPENDENT STUDY IN PHYSICS
Detailed investigation of some area or topic in physics which is not covered in the regular courses, supervised by a faculty member. Permission of the professor directing the study must be secured before registering for this course. Restricted to physics majors and honors students with a 3.00 or better grade-point average.

101. MECHANICS I: CLASSICAL MECHANICS
Matrices and vectors. Vector calculus. Newtonian mechanics. Gravitational attraction and potential. Oscillatory motion. Nonlinear oscillations. Calculus of variations. Hamilton's principle. Prerequisite: 4. Fall term.

102. MECHANICS II: CLASSICAL MECHANICS & INTRODUCTION TO QUANTUM MECHANICS
Central force motion. Two-particle collisions. Special relativity. Motion in non-inertial reference frames. Particles and waves. Free and bound single particle solutions to Schroedinger's equation. The hydrogen atom. Perturbation theory. Prerequisite: 101. Winter term.

111. ELECTROMAGNETIC THEORY I
Electrostatic fields. Laplace's and Poisson's equations. Dielectrics. Magnetic fields of steady currents. Induced electromotive forces. Magnetic energy. Magnetic materials. Prerequisite: 6. Winter term.

112. ELECTROMAGNETIC THEORY II
Maxwell's equations. Plane waves in free space and in matter. Reflection and refraction. Interference and diffraction. Polarization. Guided waves. Radiation of electromagnetic waves. Prerequisite: 111. Spring term.

113. OPTICS
Geometrical optics. Interference. Fraunhofer and Fresnel diffraction. Optical instruments. Polarization. Crystal optics. Selected topics from contemporary optics. Prerequisite: 6. Winter term. Offered alternate years. Offered 1976.

116. PHYSICS OF SOLIDS
Crystal structure. Free electron theory of metals. Band theory of solids. Magnetism. Superconductivity. Prerequisites: 7, 102. Spring term.

120. THERMAL PHYSICS
The laws of thermodynamics with applications to ideal and non-ideal systems. Elementary kinetic theory of gases. Entropy. Classical and quantum statistical mechanics. Selected topics from magnetism and low temperature physics. Prerequisite: 7. Winter term. Offered alternate years. Not offered 1976.

121. ATOMIC AND NUCLEAR PHYSICS I
Thermal radiation and quantum theory. Distribution functions. Atomic models. Bohr-Sommerfeld atom. Atomic spectra. Degeneracies. Uncertainty prin-

ciple. Transition rates. Many-electron atoms. Laboratory. Prerequisite: 102. Fall term.

122. ATOMIC AND NUCLEAR PHYSICS II
Magnetic moments. Spin-orbit interaction. Identical particles. Hyperfine structure. X-rays. Nuclear models. Semi-empirical mass equation. Alpha, beta and gamma decay. Nuclear reactions. Nuclear forces. Fundamental particles. Laboratory. Prerequisite: 121. Spring term.

131. METHODS OF MATHEMATICAL PHYSICS I
Matrices and vector spaces. Function space. Fourier analysis and orthonormal sets of function-vectors. Functions of a complex variable. Prerequisite: Mathematics 102. NCX. Fall term.

132. METHODS OF MATHEMATICAL PHYSICS II
Ordinary differential equations. Boundary conditions and eigenfunctions. The Green's function. Prerequisite: 131. NCX. Winter term.

170. ELECTRONIC CIRCUITS FOR SCIENTISTS II
Noise. Feedback and servomechanisms. Operational amplifiers and analog circuits. Oscillators. Transmission lines. Digital circuits. Laboratory. Prerequisite: 70. Fall term.

180. FOUNDATIONS OF QUANTUM MECHANICS
Linear operators and eigenfunctions. Commutation relations and the uncertainty principle. The Schroedinger equation and discrete energy levels. Matrix operators and spin. Dirac notation and operator methods. Prerequisite: Mathematics 102. NCX. Spring term.

190. UNDERGRADUATE PHYSICS RESEARCH
Departmental work under close professional direction on research in progress. Permission of the professor directing the research must be secured before registering for this course. Restricted to physics majors and honors students with a 3.00 or better grade-point average.

199. INDEPENDENT STUDY IN PHYSICS
Detailed investigation of some area or topic in physics which is not covered in the regular courses, supervised by a faculty member. Occasional arrangements are made for students to work in nearby research laboratories to help teach high school physics. Permission of the professor directing the study must be secured before registering for this course. Restricted to physics majors and honors students with a 3.00 or better grade-point average.

COLLEGE OF SCIENCES
DEPARTMENT OF POLITICAL SCIENCE

Bernard L. Kronick, Ph.D. *Acting Chairman*

Professors: Bernard L. Kronick, Charles N. R. McCoy
Associate Professors: Stephen Jurika, Jr., Richard Roberts S.J.
Assistant Professor: David Koenig

Instruction in the Department of Political Science is designed to: 1) offer all students courses planned to introduce them to the political aspects of society, and the analysis of political problems; 2) concentrate on providing undergraduate majors with a special program of studies leading to the B.S. degree in political science; 3) lay the basis for careers in the public service, and prepare students for graduate studies.

Students who wish to major in Political Science, in addition to fulfilling the general requirements of the University and those of the College of Sciences, must complete the following departmental requirements:

a) Each Political Science major must complete satisfactorily at least eleven term courses in political science.
b) During the freshman and sophomore years majors are expected to complete four lower division political science courses.
c) During the junior and senior years majors are expected to complete at least seven upper division courses.
d) Of the upper division courses referred to in (c) above, at least one is to be taken in each of these fields: American government and politics, comparative politics, international relations; and political theory.
e) One of the upper division courses is to be taken in the form of a senior seminar.
f) The student must maintain an average grade of C in the courses in the major.

Honors Program

The Honors Program provides well-qualified students with special opportunities for training and research in political science through seminars, tutorials and small-scale research projects.

Application for admission to the Honors Program normally should be made in the sophomore year. Applicants must have achieved a 3.00 average or better in all University work, and a 3.30 average or better in political science courses.

Honors candidates will complete all requirements for a major in political science and will also submit a senior project during their senior year. Graduation with Honors in

Political Science will require: (1) a 3.00 average or better in all University work; (2) a 3.30 average or better in political science; (3) the submission of an acceptable senior project; and (4) completion of such courses as the Honors Committee may designate. Interested students should consult the Chairman.

Special Emphasis Programs

The emphasis programs enable the undergraduate to acquire special expertise and competence without diluting or sacrificing the major. It is an emphasis—not a concentration or specialization—which is to be achieved within the framework of existing Departmental and College requirements. The core of these emphases includes both political science courses and courses from other departments. The courses in political science can easily be incorporated into a program satisfying the departmental requirements, while the courses from other departments can be treated as electives.

Emphasis in International Relations

This emphasis exposes the student to the realities of international relations, international law, international organizations, and modern economic interdependence, as well as to diplomatic history and geographic distribution of world resources in a highly politicized ambience reflecting proliferating popular demands, expectations, and imperatives that press ever harder on every nation. Participation in this program will be noted in the student's transcript. Full descriptions of the program may be obtained from the Chairman of the Political Science Department.

Emphasis in Political Economy

The Departments of Political Science and Economics offer jointly a program providing an emphasis in Political Economy. Students wishing to participate will major in either Political Science or Economics but will pursue a special course of study which emphasizes the interdependence of economics and political science in the analysis and solution of current domestic and world economic problems. Participation in this program will be noted in the student's transcript. This program will be especially valuable to students planning graduate work and/or careers in public affairs, law, economics and political science. The core of the program consists of Political Science 111, 117, 149, 165 and 167; Economics 114, 115, 116, 118 and 120. Full descriptions of the program may be obtained from the Chairman of the Department of Political Science or Economics.

Emphasis in Public Administration

Within the framework of existing College and departmental requirements, emphasis in this program accrues from a core of Political Science courses integrated with suggested courses from other designated departments. This emphasis will assist Political Science majors pursuing careers in the public service. It will also serve as a preparation for graduate studies leading to careers in the public, semi-public and private sectors of the business and social economy. Participation in this program will be noted in the student's transcript. Full descriptions of the program may be obtained from the Chairman of the Political Science Department.

I. Introductory Courses*

1. INTRODUCTION TO AMERICAN GOVERNMENT
The underlying principles of the American federal state. Basic ideas of American politics. The structure and powers of the American national government. Principles of the California constitution and government.

2. INTRODUCTION TO COMPARATIVE POLITICS
Government and politics in several modern states. Emphasis upon the development of analytical abilities and critical skills in the evaluation of political behavior, processes, and institutions.

5. POLITICAL GEOGRAPHY
An analysis of the relationships among man, his environment, and his political institutions, especially the internal factors of individual states upon which strategic relationships must be based. Attitudes, frames of reference, habits and beliefs—all the rationale of political and cultural action—are analyzed for agreement or disagreement with the environment. The State is the dominant political phenomenon in the modern world, and its geographical nature, policies, and power are aggregated in terms of its political behavior on a macroscale.

10. PRINCIPLES OF GOVERNMENT
The nature, origin, and justification of the state. Organization, powers and functions of government. The fundamental questions of politics examined in terms of the natural law and the common good.

15. INTRODUCTION TO POLITICAL PHILOSOPHY AND THEORY
An introduction to the major political philosophers and to the principal themes of normative political theory. The enduring issues of politics are studied through these writings and concepts.

25. INTRODUCTION TO INTERNATIONAL RELATIONS
A survey emphasizing current problems and broad geographic coverage: 1) Nation-states-goals, interests, capabilities, concepts of power and security; 2) Decision-making and leadership in crisis and non-crisis situations; 3) the International System — political and economic integration, alliance relationships, intervention.

25.77 HONORS SEMINAR IN INTERNATIONAL RELATIONS NCX**

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*From time to time "HONORS" sections may be offered in selected courses. These are designated .77 after the course number.

**Exempt from challenge

50. FRESHMAN SEMINAR
Major issues of domestic and/or international policies. Specific course subject matter announced prior to registration. Limited to twelve students. Permission of instructor required. NCX*

91.77 HONORS SEMINAR IN POLITICAL PHILOSOPHY NCX*

99. SOPHOMORE COLLOQUIUM IN POLITICAL SCIENCE
Restricted to sophomore political science majors. (Selected problems in political studies.) Methods and theory of political analysis. Specific course subject matter announced prior to registration. NCX*

II. Political Theory

111. HISTORY OF POLITICAL THEORY—FROM THE GREEKS TO THE RENAISSANCE
The foundations of Western political thought in the writings of Plato and Aristotle. The breakdown of classical political thought in the Roman-Hellenistic world and the revival of the classical ideas under the influence of the great theologians such as Augustine and Aquinas.

112. HISTORY OF POLITICAL THEORY—FROM THE RENAISSANCE TO MODERN TIMES
The "new science" of politics of the modern age, beginning with the revolutionary ideas of Machiavelli and continuing with a study of the impact of the modern scientific spirit upon the 17th, 18th and 19th century political philosophers through Marx.

113. AQUINAS AND POLITICS
A consideration of the main elements of the political thought of St. Thomas and its relevance to modern political and legal problems. Attention will be given to some modern departures from his thinking.

117. AMERICAN POLITICAL THOUGHT
Colonial America and the structure of political thought. Political development and the issues of American politics. From Independence to Democracy. Law and the courts as sources of theory. Literature and politics. The rise of social science.

III. International Relations

125. INTRODUCTION TO INTERNATIONAL LAW
Sources of international law. Nature and functions of international law in interstate relations and world politics. Control and channeling of power by law. Effectiveness of international agreements as instruments of peaceful

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*Exempt from challenge

change. Settlement of international disputes. Conditions of growth of international law.

127. COMPARATIVE FOREIGN POLICIES
Comprehensive comparative study of the foreign policies of several nation-states, including Great Britain, France, Germany, and China. Interaction of international and domestic politics in foreign policy formulation and implementation.

128. AMERICAN FOREIGN POLICY
The conduct and control of American foreign policy as illustrated by the main trends and crises of the last twenty years.

129. SOVIET FOREIGN POLICY
An analysis of Soviet foreign policy within both the communist world and the international political system. The impact of ideology on policy formulation. Particular consideration of Sino-Soviet dispute.

135. FAR EASTERN INTERNATIONAL RELATIONS
International political developments in the Far East from 1900 to the present. Emphasis on China, Japan, Korea, and Southeast Asia. Geographic environment, political forces, and the impact of differing cultures on the governmental decision making process.

IV. Comparative Politics

140. THE DEVELOPING NATIONS
A multi-disciplinary study of the problems and politics of political development in Latin America, Africa, and/or Asia. Case studies of the Communistic and Capitalistic approaches to political development. Impact of international politics on internal development.

141. POLITICAL LEADERSHIP
The study of political leadership in terms of personality, role, organization, task, values and setting. Explanations of motivation and behavior in political leadership are sought in elite analysis belief systems, statecraft, personality theory, charismatic effects, psychobiography and medical histories.

142. BRITISH POLITICS
An analysis of the nature, structure, and utilization of political power in Great Britain. Institutional, cultural, and sociological aspects of politics are treated. Focus on problems of economic and constitutional modernization.

143. MAIN FORCES IN EAST ASIAN POLITICS
An analysis of the nature, structure, and channels of political power in major East Asian nations. Geographical, cultural, institutional aspects of indigenous political forces. Emphasis on continuity of political goals, means, and social change.

144. POLITICS IN WESTERN EUROPE
An analysis of the nature, structure, and utilization of political power in representative continental European states. Institutional, ideological, cultural, and psychological aspects of politics are treated. Emphasis upon problems of political stability and social change.

145. SOVIET POLITICS
An analysis of the Soviet political system and its ideological premises. The origin and development of the Soviet party-state and its processes of government and politics.

146. POLITICAL POWER AND SOCIAL GROUPS
A comparative study of the sources, distribution, and inter-relations of economic, political and social power with emphasis on industrialized societies. The main questions dealt with are: "who owns the country?", "who runs the country?", "who gets what when and how?"

149. COMPARATIVE POLITICAL SYSTEMS
The comparative study of politics in economically advanced societies. Evaluation of the modes of inquiry into this subject. The relation of political culture to social and economic behavior. Institutions and forms of government.

V. American Government and Institutions

150. THE PRESIDENCY
An analysis of the role of the President and the Executive Office of the President in the national political system. Emphasis is placed on the President's role as Commander-in-Chief and as Chief Executive of Foreign Policy, although presidential leadership, staffing, and policy formation are provided suitable attention.

152. U.S. POLITICAL PARTIES
Origin, organization, and activities of U.S. political parties. Work of politicians, bosses, and machines. Government regulations and possible subsidy of parties. Election law and administration.

153. ELECTIONS AND PUBLIC OPINION
This course is a general introduction to American elections and aspects of public opinion which affect politics. Topics include: the nature of an opinion, the influences of family and social groups on opinion formation, why people

vote or fail to vote, the role of partisanship, candidates' images, issues and social groups in voting, and the effects of election outcomes on public policy.

157. AMERICAN CONSTITUTIONAL DEVELOPMENT I

Historical treatment spanning 1607-1890. Topics include English and colonial constitutional heritage; U.S. Constitution, 1789; landmark cases interpreting the Constitution; nature of the Union; slavery; Civil War; rise of judicial restraints on legislative economic regulation. Prerequisite: 1 or equivalent.

158. AMERICAN CONSTITUTIONAL DEVELOPMENT II

Historical treatment spanning 1890 to present. Topics include heyday and decline of judicial restraints on legislative economic regulation; judicial sanction to extensive national economic regulation; the Constitution in two World Wars; the Supreme Court's modern emphasis on civil liberties. Prerequisite: 1 or equivalent.

159. CURRENT U.S. CONSTITUTIONAL LAW: PART I

This course treats the present constitutional law of the seven Articles of the original Constitution: organization and powers of Congress, the Presidency, the Courts, interstate relations, the amending process. Instruction in use of legal research sources. Prerequisite: 1 or equivalent.

160. CURRENT U.S. CONSTITUTIONAL LAW: PART II

This course treats the present constitutional law of the twenty-six amendments to the Constitution, dealing chiefly with the rights of free speech, free press, freedom of religion, no establishment of religion, criminal justice, voting rights, due process of law protecting life, liberty, and property, equality before the law. Instruction in use of legal research sources. Prerequisite: 1 or equivalent.

162. U.S. URBAN GOVERNMENT AND POLITICS

Survey of legal powers, structure, administration of cities. Metropolitan governments. Problems of revenue, law enforcement, public utilities, planning. Equality of opportunity and poverty. Each student does individual field work in selected area of local government.

163. U.S. STATE GOVERNMENT

The development of state constitutions. Federal-state relations. Politics and elections. The legislative process. The courts. County government. The organization and current major problems of state administrative systems.

164. THE CONGRESS

Legislative behavior. The relationship between governmental agencies, interest groups and the legislative process: the orientations of legislators to their functions and their constituencies.

165. PUBLIC ADMINISTRATION IN THE U.S.
Survey of the field of public administration: organizational theory, executive leadership, personnel administration, finance, administrative law, administrative responsibility. Examples from various levels of American government.

167. THE MAKING OF PUBLIC POLICY
The processes of government in relation to economic and social programs. An examination of resource allocation, distribution of benefits, and burdens and control. Consideration is given to political choices among alternative policies in energy use, incomes policy, educational resources, health needs and costs, housing and transportation; the means of policy formation; the planning process and administrative programming.

VI. Senior Course Work

180.01, 180.02, 180.03. DIRECTED READING
For students who wish to do intensive reading in areas not emphasized by the Department or to do further independent study on specific topics not fully covered in upper division courses. Written outlines of the proposed topics and previous consent of instructor are required.

185. SEMINAR IN ARMS CONTROL AND DISARMAMENT
A study of the sources of international conflict and the control of weapons. Will consider man's nature and its relationship to war, the role of national and international systems in promoting arms and control negotiations, and the effect of technological change upon concepts of power and of security. Specific consideration to arms control and disarmament proposals since World War II.

186. INTER-NATION SIMULATION RESEARCH
Involves the study of international politics through the use of simulation or gaming techniques. Students participate both as directors of the research project and as formulators of the states' strategies and actions. Prerequisites: 25 and permission of the instructor. NCX*

187. COLLOQUIUM NCX*
Group meetings for reading, research and discussion of selected political problems.
187.01 American Politics
187.02 Comparative Politics
187.03 International Politics
187.04 Political Philosophy
187.05 Empirical Political Analysis

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*Exempt from challenge

188. TASK FORCE IN INTERNATIONAL RELATIONS NCX*
A task force approach to the study of specific international political problems. Research findings will be presented to the campus community by means of carefully prepared briefings. Admission to the course by permission of the instructor.

189. SCOPE AND METHODS OF POLITICAL SCIENCE
Consideration of the history, methodology, and focus of research in political science. The development and implications of the behavioral sciences for the study of politics. NCX*

190. SENIOR HONORS PROJECT
For senior honors students working under the direction of political science faculty in preparation of senior project. NCX*

191. SEMINAR IN POLITICAL PHILOSOPHY
Aspects of 20th Century political thought. A comparison of the values represented by the "Establishment" and those of the "Counter Culture." Is the Counter Culture a viable political movement? What is its precise nature? Do the sub-cultures of drugs and sexuality intimate anything beyond them as harbingers of a new and "good society"? What seems to be the place of the Counter Culture in the history of political thought?

192. SEMINAR IN CHURCH AND STATE
Traditional theories of Church and State are examined and evaluated in light of contemporary orientation of the problem of the relation of religion to secular life. NCX*

193. SEMINAR IN INTERNATIONAL ORGANIZATIONS
Institutionalization of international politics; development, principles, and procedures of international political, administrative and judicial organizations, emphasizing capabilities for management of power, settlement of disputes, and peaceful change. NCX*

194. SEMINAR IN MILITARY STRATEGY AND NATIONAL POLICY
Strategy and policy-making for United States national security, with special study of the substance and shadow of governmental processes by which policy is made. Case study of six major crises (Berlin, Korea, Suez, Cuba, Taiwan, Vietnam) relating military strategy and American national security policy. NCX*

195. SPECIAL TOPICS IN POLITICAL SCIENCE
This course, conducted in seminar fashion, is designed for senior majors. By means of papers and assigned readings it covers aspects of political science

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*Exempt from challenge

not elsewhere intensively developed and helps the students to integrate materials studied previously. Emphasis will be placed upon inter-disciplinary problems and approaches.

196. SEMINAR IN INTERNATIONAL RELATIONS
A consideration of selected aspects of international political behavior.

197. SEMINAR IN CIVIL LIBERTIES
Open to political science majors, and others by permission of the instructor.

198. TEACHING INTERNSHIP
This internship is designed for those who plan to enter teaching as a career and for others who may be invited to serve as readers and/or discussion leaders in lower-division political science classes.

199.01, 199.02, 199.03. PRACTICUM IN PUBLIC AFFAIRS
An opportunity to use the skills and tools of the political scientists in political offices and institutions, in governmental departments and agencies, and in politically-related aspects and areas of non-governmental enterprises. May be taken on a part-time basis as a one or two term course equivalent or on a full-time basis as a three term course. Admission by invitation only.

Geography

1. HUMAN GEOGRAPHY
World survey of man's occupation and utilization of the earth. Basic interrelations of human life and elements of natural environment.

4. ECONOMIC GEOGRAPHY
Relation, from the world point of view, of man's industries (agriculture, lumbering, mining and quarrying, manufacturing, transportation, commerce) to the natural environment.

5. WORLD REGIONS—CONTEMPORARY PROBLEMS
Types and distribution of political systems in selected regions; factors which affect political power; areas of conflict and arbitration.

107. GEOGRAPHY OF ASIA
The course has a central theme which makes it distinctive. It emphasizes the changing political and economic geography of Asia, and illustrates the various problems and potentials of the Asian nations, to provide not merely a random description but a more basic understanding of the processes of change which are radically transforming the Asian landscape.

110. GEOGRAPHY OF LATIN AMERICA
The profound shock waves of discontent typical of political alienation and instability—the overthrowing of governments, the resignations of cabinets,

political assassinations, student riots, labor violence, and organized insurgency—are responses to the geographic imperatives and cultural antecedents. The course examines and evaluates the basic geographic and concommitant cultural factors which provide the matrix for the economic and political discontent.

COLLEGE OF SCIENCES
DEPARTMENT OF PSYCHOLOGY

Roland C. Lowe, Ph.D., *Chairman*

Associate Professors: Marvin L. Schroth, Eleanor W. Willemsen
Assistant Professors: Roland C. Lowe, Wendell J. Goesling
James P. Otteson, Robert M. Petty

Students majoring in Psychology, in addition to fulfilling the general requirements for a Bachelor of Science degree, must successfully complete the following courses: Mathematics 6 and 7, Biology 7 and 8, Psychology 10, 11, 100, and six additional upper division electives, to be selected with advisor.

Students who plan to go into related fields such as special education, primary or secondary teaching should select with their advisors a group of courses in Psychology and Education specifically geared to their objectives.

Students planning graduate work towards the Ph.D. in Psychology should take Psychology 110 and 130 and courses relevant to their individual goals in Physics, Chemistry and Computer Science.

Honors Porgram

The department of Psychology provides a special program designed to meet the needs of those students showing exceptional scholastic promise and likelihood of continuing on to psychology graduate school.

The Honors student will become involved in the following special programs:

1. Special seminars in the department.
2. Ongoing research being conducted by staff members and psychology majors.
3. An independent piece of research in the senior year.
4. Attendance in courses in other departments selected to broaden the student's background.

1. GENERAL PSYCHOLOGY
Introduction to the scientific study of behavior. Topics covered include perception, motivation, intelligence and abnormal behavior. Primarily for non-majors.

5.77. HONORS COLLOQUIUM
Restricted to Honors Program students. Major issues in Psychology.

10. PSYCHOLOGY AS A NATURAL SCIENCE
The scientific study of human and animal behavior in terms of sensation, perception, learning, motivation, and emotion. Emphasis also placed on the physiological bases of behavior. Introduction to research methodology and statistical analysis of data.

11. PSYCHOLOGY AS A SOCIAL SCIENCE
Principles of human development, intelligence, abilities, personality. Psychological measurement. Sociopsychological influences on behavior. Further exposure to research methodology and additional statistical techniques.

50. PSYCHOLOGY OF ADJUSTMENT
An introduction to the psychology of personal and social adjustment. Personality patterns of the individual in various contexts, such as family, the school, marriage, the adolescent years, social relations.

80. CHILD PSYCHOLOGY
This course will survey development from birth to puberty. It is intended primarily for those who will not be taking the Psychology 181, 182, 183 sequence. Primarily for non-majors. Prerequisite: Psychology I recommended.

100. STATISTICAL AND EXPERIMENTAL DESIGN I
Statistical theory, methods, and principles underlying psychological experimentation and measurement. Indices of location and variability, sampling theory and statistical inference. Correlational theory. Prerequisites: 10, 11.

105. STATISTICS AND EXPERIMENTAL DESIGN II
Advanced topics in theory and methods of statistical analysis and experimental design. Topics include complex analysis of variance, multiple correlation and regression, factor analysis, and an introduction to nonparametric statistics. Prerequisite: 100.

110. EXPERIMENTAL PSYCHOLOGY
A survey of the experimental literature in learning, motivation, sensation and perception, and social behavior. Application of experimental design and statistics. Lectures and laboratory. Prerequisite: 100.

112. MOTIVATION AND EMOTIONS
The scientific study of the various motivational-emotional processes of man and higher animals. How motives and emotions initiate or direct behavior.

115. INTRODUCTION TO ABNORMAL PSYCHOLOGY
A comprehensive treatment of the major forms of mental disorder with regard to their etiology, nature, development, and therapy. Current theories of mental disease. The psychology of abnormal thinking. Prerequisite: 1.

120. CLINICAL PSYCHOLOGY
Methods of clinical psychology including various psychotherapies, diagnostic testing, and consultation will be covered. Prerequisite: Abnoraml Psychology or Personality.

130. PSYCHOLOGY OF LEARNING AND THOUGHT PROCESSES
A survey of the experimental literature on the basic forms of the learning process. Demonstrations in creative problem solving. The nature of concept formation. Prerequisite: 100.

135. DEVELOPMENTAL PSYCHOLOGY SEMINAR
This course will be a small enrollment discussion class for Psychology Majors. Students will pursue readings from the original theoretical and empirical journal literature on some topic area from Developmental Psychology. The topic will vary from year to year. All students will prepare research proposals as term projects. Prerequisite: Either Psychology 185, 186, or 187.

136. PSYCHOLOGY OF SEX DIFFERENCES
This course will deal with culturally defined sex roles and sex differences in personality, cognition, and biology. The processes by which sex differences develop will be discussed. The social-learning, cognitive-developmental, and psycholoanalytic views will all be treated. Writings from the current movement for a change in traditional sex roles will be read and students will be encouraged to examine the relation between course materials and their own lives.

138. THE EXCEPTIONAL CHILD
This course will survey the problems of mental retardation and (so called) mental illness in children. The course will survey various kinds of problems and the means of aiding the children involved by means of psychotherapy and/or special education. The special problems of the gifted child will also be discussed. Prerequisite: One of Psychology 185, 186, 187 and 80.

140. RESEARCH IN CHILD PSYCHOLOGY
Application of research methodologies to study of child development. Individual research projects required. Prerequisite: 100 and 110.

145. PSYCHOLOGICAL MEASUREMENT

Principles and problems of measurement in psychology, especially as related to tests of attitudes, aptitudes and personality. Students construct, administer, score, interpret, and evaluate tests.

150. SOCIAL PSYCHOLOGY

Study of the influence of social environment on psychological processes and behavior. Topics covered include, for example, person perception, social comparison processes, attitude change, aggression, behavior in small groups.

155. ENVIRONMENTAL PSYCHOLOGY

The study of human behavior as it is influenced by natural and man-made environments. A primary goal of this course is to integrate a variety of related approaches: psychology, anthropoligy, architecture, sociology, urban design. Naturalistic field study will be considered as an alternative to experimental laboratory research. Students are required to do a project that deals with one of the topics that is covered in the course: personal space, field experimentation, naturalistic observation, influences of the physical environment, social perception, territoriality, crowding, problems in architectural and urban planning. The course is restricted to advanced Psychology majors.

160. THEORIES OF PERSONALITY

Critical analysis of major theories of personality with emphasis on practical and research implications. NCX*

165. PHYSIOLOGICAL PSYCHOLOGY

Physiological bases of behavior in terms of neural, glandular and visceral processes. Neurophysiological correlates of behavior with emphasis on motivation and learning. Lectures and laboratory. Prerequisite: permission of instructor.

170. SYSTEMS, THEORIES, AND MODELS IN PSYCHOLOGY

Origin and development of modern psychology. Structuralism, Functionalism, Behaviorism, Gestalt Psychology in terms of sensation, perception, learning, thinking, etc. Miniature systems and models. NCX*

175. HUMANISTIC PSYCHOLOGY

A survey of the literature from the humanistic "third force" in psychology. Rogers, Maslow, May, Berne and Perls are studied from both theoretical and therapeutic standpoints. Traditional psychology is also examined in the light of these writings. Stress is placed upon the motifs of self-actualization, individuality and values as these pertain to the conduct of psychology.

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*Exempted from challenge.

NB: Upper-division credit in psychology may be given for Sociology 150.

182. SEMINAR IN THE PSYCHOLOGY OF MOTIVATION

A series of assigned readings and reports from classic and contemporary sources in the experimental and theoretical literature on motivation. Investigation of special problems. NCX*

184. SEMINAR IN THE PSYCHOLOGY OF LEARNING

A series of assigned readings and reports from classic and contemporary sources in the experimental and theoretical literature on learning and thinking. NCX*

185. EARLY CHILDHOOD**

This course will combine lectures and discussion approaches. It will survey the development of the child from birth through the preschool years (approximately to age six). Some topics to be included are sensory-motor behavior of infants, parent-child relations, intellectual development, nursery school education and day care, children's television, and sex role learning. In this course the three major theoretical approaches to child development—those of Freud, Piaget, and the Learning Theorists will be introduced. No prerequisite.

186. MIDDLE CHILDHOOD**

This course will combine lecture and discussion approaches. It will survey the development of the child during the grade school years from approximately age seven to age eleven. Some topics to be covered include: intelligence, achievement, sex role development, peer interaction, the family, moral development, self esteem, political socialization, and the school. These topics will be discussed in the context of the three major theories introduced in Psychology 185. Prerequisite recommended: Psychology 185.

187. ADOLESCENCE**

This course will survey development during the period between puberty and the early twenties. There are two phases to the course. The first focuses on the meaning of the term adolescence and deals with such topics as identity, intellectual development, physical growth, sex differences, high school education, vocational choice, and the peer culture. These topics, and others, will be discussed in the context of the three theories introduced in Psychology 185. The latter part of this course will consist in reports from student task forces or such applied topics as "The adolescent and the drug scene," "Sex education for adolescents," "The disadvantaged adolescent," "The homosexual adolescent," "Special problems of female adolescence," "Education

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**NOTE: Psychology 185, 186, and 187 are designed as a sequence. Students planning to take all three are urged to take them in this order. However, students may take any of the three courses without having taken the others. A student who does this may be asked by the instructor to read some supplementary text material covering the developmental periods missed. All three courses require a project.

for the adolescent," "The role of athletics in guidance of adolescents," etc. Suggested prerequisites: Psychology 185, 186.

190, 191, 192. INDEPENDENT RESEARCH
Independent projects for special senior students involving both experimental and theoretical research. NCX*

195. ADVANCED SEMINAR
Intensive focus on selected topics which vary from year to year.

197, 198, 199. PRACTICUM
Clinical experience in community agencies. Involves selected readings. Open to seniors with average GPA of 3.00 or better. Present practicums include child development, psychotherapy with children, and occupational therapy.

COLLEGE OF SCIENCES
DEPARTMENT OF SOCIOLOGY/ ANTHROPOLOGY

Witold Krassowski, Ph.D., *Chairman*

Associate Professor: Paul F. Verden
Assistant Professors: Joseph R. DeMartini, Kichiro K. Iwamoto, Joan Kruse, Nancy Olsen, Charles B. Rosen
Acting Assistant Professor: Allen Pastron

Sociology and Anthropology are closely related disciplines; both study the social life of human groups. While the general approach of the Department emphasizes the scientific and analytic aspects of the two fields, students will find that Sociology and Anthropology are also avenues to the development of personal values on issues of social concern.

All students in the Department major in Sociology/Anthropology, but are expected to emphasize one or the other of the two disciplines.

Students who wish to make Anthropology their area of emphasis, in addition to fulfilling the general requirements of the University, and the College of Sciences, must complete the following courses: Anthropology 1, 2, and 3; Sociology 1, 17, and 19; Anthropology 118, and a minimum of seven other upper-division courses in the Department. Of these seven, at least five must be in Anthropology; the others may be in either Anthropology or Sociology.

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*Exempted from challenge.

Students who wish to emphasize Sociology, in addition to fulfilling the general requirements of the University and the College of Sciences, must complete the following courses: Sociology 1, 13, 17 and 19; Anthropology 3; Sociology 118 and a minimum of seven other upper-division courses in the department. Of these seven, at least five must be in Sociology; the others may be in either Sociology or Anthropology.

An average grade of C must be maintained in the courses in the major.

The academic programs developed by the department stress the individual interests and objectives of students. Attempts are made to develop personalized programs for each student which makes it essential that students majoring in the department frequently consult—and work closely with—their academic advisors. A variety of options are open to students majoring in Sociology/Anthropology such as: a) pre-professional programs designed for the student who plans to do advanced graduate work in the discipline, b) a pre-legal option for the student who chooses to enter law school, c) an undergraduate program for the student who plans to do graduate work leading to teaching credentials in elementary, secondary, and special education, d) a concentration preparatory to graduate work in the field of Administration (MBA) or Social Welfare (MSW), etc. Students who view their Bachelor Degree as a terminal one find that Sociology/Anthropology offers a strong background for careers in social service, juvenile and adult probation, child welfare, urban planning and for various types of positions in organization management. Suggested courses of study for each of these career options are described in the pamphlet, "Majoring in Sociology/Anthropology," available from the Chairman of the Department or the student's academic advisor.

Honors Program

Outstanding students in Sociology/Anthropology are invited to participate in the University Honors Program. This four-year program will provide students with particularly challenging and stimulating learning experiences corresponding to their academic potential.

Honors students in Sociology/Anthropology will be expected to: 1) enroll in honors seminars, and special honors sections of regular courses; 2) become involved in research, both through participating in on-going faculty research projects, and through initiating and executing, under faculty guidance, small-scale research projects of their own; and 3) complete a senior thesis based upon independent research. Interested students should consult the Chairman at the earliest opportunity.

SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY
An introduction to the field of sociology with applications of sociological principles to our present society.

1.77. HONORS SEMINAR IN PRINCIPLES OF SOCIOLOGY NCX*

13. AMERICAN SOCIETY
A mutual exploration of the potential and limitations of the sociological perspective for enhancing personal liberation within the constraints of an advanced industrial civilization. Includes a review of the social problems besetting contemporary American society, their inter-relations and structure bases within American society.

17. PRINCIPLES OF STATISTICS
Introduction to statistical analysis. Single- and multi-variate description, measures of association, and logic of statistical inference. Focus is on the application and uses of these techniques in the field of sociology. Prerequisites: Mathematics 6 or equivalent.

19. RESEARCH METHODS
Introduction to basic research methods, including participant observation, content analysis, survey research, and laboratory experiments. Each technique is used to gather and analyze data. Prerequisite: Sociology 17. NCX*

90, 91, 92. LOWER DIVISION SEMINAR IN SOCIOLOGY
Seminars for freshmen and sophomores on selected issues in sociology or current problems of social relevance. By permission of the instructor only. NCX*

110. INTERGROUP RELATIONS
Prejudice and discrimination toward minorities, with particular emphasis upon the current situation in the United States.

112. ASIAN-AMERICAN COMMUNITIES
Historical development and contemporary social organization of Asian communities in the United States; Asians as a racial minority in American society; personality development and mental health of Asian-Americans.

117. ADVANCED RESEARCH METHODS
The formulation and design of applied research. Definition of the problem, hypothesis testing, development of research design, measurement, data gathering, computer analysis and interpretation of findings. Prerequisites: Sociology 17 and 19 with a grade of B or better, or permission of the instructor. NCX*

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*Exempted from challenge.

118. INTRODUCTION TO SOCIOLOGICAL THEORY
A course focusing on the principal social theories, questions they are trying to answer, and their relations to methodological principles. Prerequisite: Sociology 1, Sociology 19 or permission of the instructor.

119. POLITICAL SOCIOLOGY
Conflict, consensus, coercion and authority. The study of the relationship between the social structure and the political order. The social bases of political parties, political movements and the state.

120. COLLECTIVE BEHAVIOR
Analytical study of collective behavior principles; typology of crowds, mass behavior and the characteristics of publics. Introduction to social movements.

129. THE PROCESS OF COMMUNICATION
Communication as a sociopsychological and cultural process. Communication patterns in small groups, and in large organizations. Organization, functions, and development in mass media. Comparisons of systems.

132. SOCIAL STRATIFICATION
Examination of the basic characteristics of social rewards in society and how they contribute to social structures of inequality. Focus upon social class life styles and consequences for members.

143. URBAN SOCIOLOGY
Urbanization, its nature, causes, and consequences. Growth and structure of metropolitan areas. Decision-making in cities. New patterns of urban government. NCX*

144, 145. URBAN ISSUES I & II
Analysis of social, political, and economic structures of modern city. Impact of state and federal programs. Community planning and development. NCX*

147. SOCIAL PROBLEMS OF INDUSTRIAL SOCIETY
Examination of the characteristics of modern industrial society and some of its basic problems, such as alienation, affluence and the work ethic, industrial motivation models, modern sex roles, primary group influences, and leadership behavior.

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*Exempted from challenge.

148. HUMAN BEHAVIOR IN COMPLEX ORGANIZATIONS
Examination of bureaucracy, the fundamental social organization of modern society. Focus will be upon the characteristics and consequences of living in a bureaucratic society. Examples drawn from industrial organizations, mental institutions, prisons, and universities.

149. WORK AND LEISURE
An exploration of the past, present, and future of work and leisure in human history. The apparent complimentary nature of work and leisure will be examined in terms of cultural context, selected social institutions, systems of stratification, technology, social role and self concepts. Course materials will include a consideration of the changing meaning of such terms as time, wealth, alienation, and sloth.

150. SOCIAL PSYCHOLOGY
The study of individuals in social contexts. Topics include person perception, social influence, persuasion, interpersonal attraction, power, status and norm formation, and conformity.

151. SOCIOLOGY OF SEX ROLES
A sociological analysis of sex differences and sex-role inequalities including an examination of cross-cultural, historical, and contemporary U.S. materials.

152. SOCIALIZATION
The learning of norms and values throughout the life cycle, with an emphasis on the social structures within which socialization occurs.

153. CHILDHOOD AND SOCIETY
Childhood in various cultures and in historical perspective. Social definitions of childhood in the U.S., and their reflection in legal, educational, and family institutions.

156. FAMILY AND KINSHIP
Marriage, the family, and kinship are studied both in our own society and in cross-cultural perspective.

157. SELECTED ISSUES IN FAMILY AND KINSHIP
An intensive study of one or two topics in the field of family and kinship. Prerequisite: Sociology 156 or consent of the instructor.

159. SOCIOLOGY OF EDUCATION
The socio-psychological aspects of educational processes and educational institutions in a changing society.

161. SMALL GROUPS
The structure and social processes that occur in small groups. Topics include power and prestige, leadership, communication networks, game theory, and distributive justice.

165. DEVIANT BEHAVIOR
Examination of such deviant behavior as crime, mental disorder, and alcoholism. Social factors in the etiology and control of deviant behavior.

166. CRIMINOLOGY
The study of crime in society. The course will include a review of "classical" theories of criminal activity, as well as contemporary viewpoints. "Crime" will be considered in relation to American society, its institutions and ideologies. Criminal perspectives and "victimology" will also be included.

169. POPULAR CULTURE
A socio-historical analysis of shifting current and significant trends in the development of popular mass culture activities in America from 1900. Special emphasis will be given to the continued presence of folk and ethnic art forms (including music, dance and humor) and the emergence of a mass entertainment industry.

170. SOCIAL CHANGE
Significant trends and issues in contemporary American society and in the world. The utility of sociological concepts and principles in understanding contemporary society.

171. DEMOGRAPHY
The demographic issues of the modern world; patterns of population growth, problems of quantity, composition, distribution, and quality, and population policies.

193, 194, 195. ADVANCED SEMINAR IN SOCIOLOGY
Seminars for juniors and seniors on selected issues in sociology or current problems of social relevance. One offered each term. By permission of the instructor only. NCX*

196. INDEPENDENT RESEARCH
Involves student participation in an on-going research project or the development and execution of a student research project under the supervision of a faculty member. By permission of the instructor only. NCX*

197. INDEPENDENT STUDY
For students who wish to do intensive reading in areas not emphasized by the Department, or to do further independent study on specific topics not fully covered in departmental courses. By permission of the instructor only. NCX*

*Exempted from challenge.

198. TEACHING INTERNSHIP
An opportunity for qualified students to assist in teaching selected courses in the Department, ordinarily by leading discussion or lab sections. They will work under the close direction of the faculty member in charge of the course. By invitation only. NCX*

199, 199A, 199B. PRACTICUM
Opportunity for students in good standing to work and conduct sociological analysis in community agencies, government bureaus and political or industrial organizations. May be taken on a part-time basis as a one or two term course equivalent or on a full-time basis as a three-term course. By permission of the instructor only. NCX*

ANTHROPOLOGY

1. INTRODUCTION TO PHYSICAL ANTHROPOLOGY
The study of the origin and antiquity of man, the fossil evidence for human evolution, primate behavior, and human variation in morphology, serology, and genetics.

2. ARCHAEOLOGY AND PREHISTORY
A survey of the evolution of human culture during the pleistocene period in both the Old World and the New World.

3. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY
The concept of culture, the development and evolution of social and cultural analysis of the major sub-systems of culture (economic, echnological, social and political organizations, philosophy and world-view), and selected issues of social concern: racism, cultural determinism, cultural relativity.

3.77. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY, HONORS NCX*

90, 91, 92. LOWER DIVISION SEMINAR IN ANTHROPOLOGY
Seminar for freshmen and sophomores on selected issues in social and cultural anthropology. By permission of the instructor only. NCX*

118. CULTURAL ANTHROPOLOGICAL THEORY AND METHODS
A survey of the major schools of thought in the development of social and cultural anthropology, ranging from 19th century cultural evolutionism to contemporary French structuralism, and a discussion of field methods.

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*Exempted from challenge.

142. SOCIAL ORGANIZATION
The analysis of kinship, marriage and descent structures, their evolution and range of variation in world cultures.

144. CULTURAL ECOLOGY
Survey of the theories, methods and applications of the ecological perspective to the cultural attributes of human populations; emphasis of the course will be upon the relationship between the natural environment and human cultural systems.

148. OLD WORLD PREHISTORY
A survey of the prehistoric cultures of Africa, Europe, and Asia during the pleistocene period.

150. ANTHROPOLOGICAL APPROACHES TO THE STUDY OF RELIGION
A comparison of approaches taken by anthropologists and other social scientists to understand the nature of religious beliefs in different cultures. Relation of myth and ritual to social organization, environment, and other systems of thought.

152. POLITICAL ANTHROPOLOGY
Problems of defining and studying political behavior in non-Western cultures. Effects of social, cultural and environmental factors on political organization in selected societies. Emphasis upon comparison of analytical assumptions of different authors.

155. PSYCHOLOGICAL ANTHROPOLOGY
The inter-relationships among cultural, social, and psychological factors in human behavior. Prerequisites: one course in Anthropology and one course in Psychology.

158. ANTHROPOLOGY OF DEVELOPMENT
The effects of change on people's lives in third world countries. Cultural and social change will be examined in concrete instances studied by anthropologists. Included are theories of change and the relevance of applied anthropology.

185. PEOPLES AND CULTURES OF MEXICO
A survey of both prehistoric and contemporary societies of Mesoamerica; the course will emphasize the relationship between ancient and modern Mexican cultural systems.

186. NORTH AMERICAN INDIAN ETHNOGRAPHY
The range of variation of North American Indian cultures from the Arctic to Mexico; the concept of culture area; modern reservation conditions.

187. PEOPLES AND CULTURES OF AFRICA
A general anthropological view of the major institutions of sub-Sahara Africa, as exemplified through their appearance in a wide variety of cultures. Both ethnographic accounts and theoretical issues are discussed.

193, 194, 195. ADVANCED SEMINAR IN ANTHROPOLOGY
Seminars for juniors and seniors on selected topics in social and cultural anthropology. By permission of the instructor only. NCX*

196. INDEPENDENT RESEARCH
Involves student participation in an on-going research project, or the development and execution of a student research project under the supervision of a faculty member. By permission of the instructor only. NCX*

197. INDEPENDENT STUDY
For students who wish to do intensive reading in areas not emphasized by the Department, or to do further independent study on specific topics not fully covered in departmental courses. By permission of the instructor only. NCX*

SCHOOL OF BUSINESS AND ADMINISTRATION

Charles J. Dirksen, M.S.C., LL.D., *Dean*

The Board of Trustees established the School of Business and Administration as an integral part of the University of Santa Clara in 1926. The four-year curriculum was approved in 1927. The Graduate School of Business and Administration was established in 1958.

The School of Business and Administration correlates the general education aims of the University with preparation in meeting the general and specific problems of industry.

The specific aims are to supply professional training for those who are aiming at responsible positions in corporations, in their own businesses, in professional organizations serving business, or in state and federal government agencies; and to provide graduate work at both the master and doctoral levels.

The Schools of Business and Administration is divided into three divisions:
Undergraduate, leading to the B.S.C. degree;
Graduate, leading to the M.B.A. and Ph.D. degree;
The Center for Leadership Development.

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*Exempted from challenge.

There are six departments within the School—Accounting, Economics, Finance, Management, Marketing and Quantitative.

National Affiliation

Both the Graduate and the Undergraduate Schools are accredited by the American Assembly of Collegiate Schools of Business.

Rights Reserved

The curriculum and regulations affecting students may be revised at any time at the discretion of the University administration.

Undergraduate Program

The program leading to a degree of Bachelor of Science in Commerce consists of a total of 175 quarter units. Thirty-five quarter units taken in the last three regular terms of attendance at the University shall constitute residence requirements for a degree.

During the first two years, extreme specialization is not the aim of the School. Rather, the student is trained in the fundamentals of English, Mathematics, Economics, Accounting, Speech, and Humanities so that he will be well prepared to analyze and study the technical and special problems of business.

During the Junior and Senior years, the program is arranged so that every student will include courses in the major functions found in typical business firms. All students must take courses in Finance, Marketing, Management, Accounting and Business Policy.

Special and advanced work is given in Accounting, Management, Economics, Finance, Marketing and Statistics so that students may specialize in some specific area. As an example, majors in Accounting may take the required work to prepare for the Certified Public Accounting examination.

General educational courses provide the student with the broader fundamental principles necessary for dealing with the industrial system in its social and technical relationships.

Honors Program

The School of Business participates in the Honors Program of the University. During the Freshman and Sophomore years, students are assigned to honors sections which will be offered for students in the School of Business and in the Colleges of Humanities and Science. During the Junior and Senior years, special honors sections will be supervised by the various departments in the School of Business.

Internship Program

The Undergraduate Committee of the School of Business and Administration will grant permission for a limited number of students to earn five quarter units of credit in a special internship program.

To qualify for the course credit, the student will be required to make arrangements with an executive of a business firm or governmental unit to supervise the work or project.

The student must then submit a written petition to the Undergraduate Committee. The petition must include a detailed plan of study and a written statement from the executive of the organization stating that he will accept the responsibility of supervising the work or project.

The Undergraduate Committee of the School will decide whether or not the petition for the work will be approved.

Method of Instruction

Students learn through doing. Cases, problems, and discussions supplement in large measure the lecture method which many schools use.

The students must serve as active participants in class discussions. They must learn how to analyze business problems in a great variety of situations. In so doing, they develop the ability and aptitude to evaluate a business problem and to decide on what course of action to follow.

Transfer Students

Students who transfer to the School of Business from other universities and junior colleges must complete, during their first two years, a minimum of 60 semester or 90 quarter units in order to be given Junior status. Included in these units must be 6 semester or 9 quarter units of Principles of Accounting, 6 semester or 9 quarter units of Principles of Economics, and six semester or 9 quarter units of Mathematics.

Graduation Requirements

The program leading to a degree of Bachelor of Science in Commerce consists of a total of 175 quarter units. During the first two years in the School the student must complete 88 quarter units. The recommended program for the first two years is similar for all students. Included in these units are the following specific course requirements.

LOWER DIVISION

1. English—3 Term Courses (one may be Speech)
2. Institution Requirement—3 Term Courses to be selected from the offerings

of the History Department. Business and Society (73.011) and American Economic History (13.012) may be used in fulfilling the requirement.

3. Mathematics—3 Term Courses. Any of the following sequences will satisfy this requirement.

   Quantitative Methods 14, 15, 16 (One Physical Science may be substituted for QM 16). Math 11, Math 12, Math 13 (One Physical Science may be substituted for Math 13). Math 6, Math 7, Science Math 1, to be followed by Math 11 and 12, or Quantitative Methods 14 and 15, or Math 6 and 7.
4. Accounting—3 Term Courses (Accounting 1, 2, 3)
5. Economics—2 Term Courses (Economics 1 and 2)
6. Statistics—1 Term Course (Quantitative Methods 40 or Economics 55)
7. Religious Studies—2 Term Courses
8. Electives—3 to 5 Term Courses (Logic, one other Philosophy course and one law course are recommended).

UPPER DIVISION

Each student is required on entering the Upper Division to fulfill the following minimum requirements for graduation:

1. At least 87 Quarter Units, (13 of the courses numbered 100 and above) must be completed after fulfilling the requirements of the lower division.
2. A minimum of 12 Upper Division Courses (60 quarter units) in Business and Economics must be completed during the Junior and Senior years. Of these 12 courses, the following core is required of all students:

   Quantitative Methods 100

   Finance 121

   Management 160

   Marketing 181

   Economics 114

   Management 162 or Economics 115
3. Religious Studies—1 Term Course
4. Electives—5 Term Courses

   Any course given at the University will satisfy this category. However, the student should be careful to select these courses so as to achieve the 175 quarter units requirement.

In addition to the core requirements a student should select a field of emphasis. The following fields of emphasis are approved:

Accounting, Quantitative Methods, Economics, Finance, Management and Marketing.

A student, who, for important reasons, does not wish to select one of the areas of emphasis, may on written petition to the Undergraduate Committee receive permission to follow a general business program.

Written Petitions

The School of Business Undergraduate Committee has a very strict requirement that must be followed by all students. All requests for changes in program *must* be on *written petition* to the Undergraduate Committee. Petition Forms may be secured in the School of Business Office, 3rd Floor, Kenna Hall, the School of Business Building.

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF ACCOUNTING

Charles F. Louie, Ph.D., *Chairman*

Professors: Thomas Maier, John Pagani, Charles F. Louie
Associate Professor: Marlynn K. Bohman
Assistant Professors: Paul V. Harrell, Paul Locatelli, S.J.
Acting Assistant Professor: Robert Calvert
Lecturer: Norman L. Amy

Required: 130, 131, 132, 133 plus any other accounting course. Those preparing for professional accounting careers should include 136, 135, 137 and 138. One course in Business Law is required.

1. FUNDAMENTALS OF ACCOUNTING
Constructive aspects of accounting with attention centered on the general ledger and its manipulation.

2. FUNDAMENTALS OF ACCOUNTING
The financial cycle and its interpretation as seen through accounts. Prerequisite: 1.

3. FUNDAMENTALS OF ACCOUNTING
Managerial accounting as viewed through the analysis of costs. Prerequisite: 2.

55. ACCOUNTING IN THE SOCIAL SCIENCES
The Analytical framework of accounting with reference to the social sciences.

130. INTERMEDIATE ACCOUNTING I
Valuation in financial accounting. Prerequisite: 2.

131. INTERMEDIATE ACCOUNTING II
Valuation in financial accounting. Prerequisite: 130.

132. ADVANCED ACCOUNTING I
Accounting for proprietary interests. Prerequisite: 131.

133. ADVANCED ACCOUNTING II
Accounting for proprietary interests. Prerequisite: 132.

134. ACCOUNTING AND INFORMATION SYSTEMS
Introduction of systems and systems design. Prerequisites: 3, 73.160.

135. ADVANCED ACCOUNTING THEORY
Analysis of contemporary problems in accounting theory. Prerequisite: 132.

136. ADVANCED COST ANALYSIS
Standard costs and budgetary techniques for cost control. Cost and profit analyses for decision-making purposes, including direct costing, profit-volume analysis, and break-even analysis. Prerequisite: 3, 131.

137. AUDITING
The techniques of external auditing, which are based upon the purpose of an audit and upon the conventional standards to which these techniques should conform.

138. INCOME TAXATION I
Federal income tax practice and theory applied to the determination of tax liability of the individual. Similarities and differences, when appropriate, are indicated for partnerships and corporations.

139. INCOME TAXATION II
Federal income tax theory and practice applied to the determination of tax liability of corporations, partnerships, estates, trusts, and gifts.

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF ECONOMICS

Mario L. Belotti, Ph.D., *Chairman*

Professors: Mario L. Belotti, Thaddeus J. Whalen, Jr.
Associate Professors: William Donnelly, S.J., J. M. Heineke
Assistant Professors: Richard T. Coz, S.J., Henry Demmert, Daniel T. Dick, Robert E. Looney, Marshall Medoff
Acting Assistant Professor: Frederick Nold

Lower Division Courses

1. PRINCIPLES OF ECONOMICS I
An introduction to the general principles, terminology, and methods of macroeconomics.

2. PRINCIPLES OF ECONOMICS II
An introduction to the general principles, terminology, and methods of microeconomics.

12. AMERICAN ECONOMIC HISTORY
A study of the economic history of the United States with special emphasis upon basic economic organizations, such as the business enterprise, the labor union, and the economic functions of government.

20. CURRENT ECONOMIC ISSUES I
A study of contemporary macroeconomic problems. Prerequisite: Economics 1.

21. CURRENT ECONOMIC ISSUES II
A study of contemporary microeconomic problems. Prerequisite: Economics 2.

55. STATISTICS
Introduction to statistical methods and techniques of elementary statistical analysis.

Upper Division Courses (Economics 1 and 2, or permission of the Undergraduate Committee, is required for all upper-division courses)

114. MICROECONOMICS I
An introduction to the theory of demand production, cost and pricing.

115. AGGREGATE ECONOMIC THEORY
The focus of this course is on the macro, or aggregative aspects of the economy. It emphasizes modern macroeconomic models which aim at explaining the level of output, employment and prices.

116. HISTORY OF ECONOMIC THOUGHT
A study of the evolution of economic ideas and their influence on the development of economic practices. Prerequisites: Economics 114 and 115.

117. EUROPEAN ECONOMIC HISTORY
A study of the preindustrial environment and industrial growth patterns of the western European countries.

118. COMPARATIVE ECONOMIC SYSTEMS
In this course the performance of market economies is contrasted to that of centrally planned, non-market economies and to that of "mixed" economies. The question of performance is addressed from both a theoretical and a practical point of view.

120. ECONOMICS OF THE PUBLIC SECTOR
In this course microeconomic theory will be applied to the analysis of the public sector. Prerequisites: Economics 114.

121. MICROECONOMICS II
The purpose of this course is to acquaint the student with applications of microeconomic theory to familiar economic problems.

122. MONEY AND BANKING
A theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis upon the relationship between the monetary and banking system and the rest of the economy.

124. INDUSTRIAL ORGANIZATION
A microanalysis of the structure, conduct, and performance of American industry. Prerequisite: Economics 114.

125. WELFARE ECONOMICS
A study of the principles by which economists evaluate the social desirability of alternative market arrangements. Prerequisite: Economics 114.

128. BUSINESS CYCLES AND FORECASTING
A study of the nature and causes of economic instability in an industrial economy.

129. ECONOMIC DEVELOPMENT
An analysis of the historical and theoretical context underlying present efforts to increase the rate of economic growth in underdeveloped countries.

130. LATIN AMERICA ECONOMIC DEVELOPMENT
An examination of the economic development of Latin American countries with particular emphasis on the relationships between economic growth and the social, political and economic structures of these countries.

131. AFRICA ECONOMIC DEVELOPMENT
A study of the economic development of Africa, with particular emphasis upon the relationships between economic growth and the social, political and economic structures of these countries.

132. ASIA ECONOMIC DEVELOPMENT
A study of the economic development of Asian countries with particular emphasis upon the relationships between economic growth and the social, political and economic structures of these countries.

133. SOVIET ECONOMIC DEVELOPMENT
A study of the economic development of the Soviet Union since the Communist Revolution.

134. GROWTH DYNAMICS AND PLANNING
A study of various theoretical growth models and their application to development, planning and project evaluation. Prerequisites: Economics 114 and 115.

140. URBAN ECONOMICS
This course examines the economics of urban problems with emphasis on location and land use, the housing market and transportation. The interaction of location and land use decisions with the housing market and the transportation system is analyzed with reference to the amelioration of urban problems. Prerequisite: Economics 114 or permission of the instructor.

141. ENVIRONMENTAL ECONOMICS
A course in the application of basic economic principles to questions concerned with the appropriate use of environmental resources. Emphasis is on the role of cost/benefit analysis in designing environmental policy. Prerequisite: Economics 114.

150. LABOR ECONOMICS
A study of labor productivity, incomes, employment and how these are affected by labor organizations and labor legislation.

160. THE ECONOMICS OF POVERTY
A study of the economic conditions which lead to poverty and possible alternative policies directed at modifying such conditions.

170. MATHEMATICAL ECONOMICS I
In this course many familiar micro and macro economic models are generalized and reformulated as mathematical systems. Attention is focused on exploring the properties of these models using mathematical techniques. Emphasis is primarily on static models. Prerequisites: Mathematics 11 and 12, Economics 114 and 115, or consent of professor.

171. MATHEMATICAL ECONOMICS II
Analysis of dynamic economic models. Differential and difference equations are used to explore economic growth, technological change and other types in both macro and micro economics. Selected topics from the economics of uncertainty are also discussed. Prerequisites: Mathematics 11 and 12, Economics 114 and 115, or consent of professor.

174. STATISTICAL ANALYSIS
A course designed to acquaint the student with the foundations of statistical research methods. Topics include distribution theory, estimation, testing and prediction, with special emphasis upon multivariate models. Prerequisites: Mathematics 11 and 12 or equivalent.

177. ECONOMETRICS
An introduction to the techniques used by economists to estimate and test economic relationships. Focus is on regression analysis, time series problems and estimation of multiple equation models. Prerequisites: Economics 174 or equivalent.

180. INTERNATIONAL ECONOMICS
An analysis of the theory of international trade, of problems in balance of payments adjustments and of international economic policies. Prerequisite: Economics 114.

188. JUNIOR HONORS SEMINAR
Modern economic theories and problems. Reserved for Honors students.

189. SENIOR HONORS SEMINAR
Modern economic theories and problems. Reserved for Honors students.

190. INDEPENDENT STUDY

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF FINANCE

D. Robert Papera, Ph.D., *Chairman*

Professors: Francis J. Corrigan, D. Robert Papera
Associate Professor: Pretorius Van Den Dool
Assistant Professor: Richard D. Gritta
Lecturers: Arthur Highman, Joseph F. X. Monasta

Required: 121, 125, plus four electives from the following: 124, 125, 126, 129, 148, 150, 191, 198, 199, Economics 119, Economics 120.

121. FINANCIAL MANAGEMENT
Primary emphasis on financial analysis, decisions, and policies related to the management of working capital and the sources of short-term financing.

124. INVESTMENTS AND INVESTMENT INSTITUTIONS
Nature of investment institutions and the development of their investment programs in practice and theory.

125. FINANCIAL POLICY
Emphasis placed on financial analysis and theory pertinent to financial structure, capital structure, dividend policy, cost of capital, captial budgeting, and investment policy and valuation. Prerequisite: 121.

126. DYNAMICS OF THE FINANCIAL SYSTEM
Role and function of financial institutions, financial flows, interest rate structures, money, and capital markets. The implications for the formulation of business financial policy will be highlighted.

127. PERSONAL FINANCE
A survey course covering the various areas in personal financial planning. Topics will include: personal credit and its uses; home ownership (tax effects and other advantages); basic investment media; estate planning; etc. Prerequisite: none.

129. SENIOR FINANCE SEMINAR
Students study and discuss selected topics in financial management, theory, and research. The selected topics will be partially determined by interests of

the seminar members. Emphasis is placed on discussion of a paper and individual reading.

148. PRINCIPLES OF INSURANCE
A survey course to acquaint the student with the general principles of insurance and their application to the various branches of the field.

150. LIFE INSURANCE
Studies of the theoretical concepts of the business and personal uses of life insurance and annuities.

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF MANAGEMENT

Joseph M. Trickett, Ph.D., *Chairman*

Professor: Joseph M. Trickett
Visiting Professors: McKee Fisk, H. B. Kirshen
Associate Professors: Warner O. Brandenburg, Joel K. Leidecker, James Hall
Lecturers: Mylen E. Fitzwater, Robert F. Jacobs, Joseph P. Kelly

Required: 160, 162 plus any three to be selected from 158, 159, 164, 166, 168 and 171, and 191, 198 and 199 and Sociology 147.

11. BUSINESS AND SOCIETY
To discuss and clarify the role of business in modern society and its relationship with the social, political, and economic environments. The course emphasizes the external environment of Business and how these forces are influencing the scope functions and objectives of business institutions.

18. LEGAL ENVIRONMENT OF BUSINESS I
An examination of the law as applied to business and the environment.

20. LEGAL ENVIRONMENT OF BUSINESS II
Continuation of 18.

147. SOCIOLOGY OF MANAGEMENT
Consideration of formal and informal groups and organizations in industry. (This course will not be offered after the academic year 1972-1973.)

158. GOVERNMENT AND BUSINESS
A study of federal and state economic powers and how they have been used to promote and regulate business activity.

159. MANAGEMENT AND THE ARTS
The nature of management and the economic issues and problems concerning individuals and organizations in the fine arts and the performing arts.

160. ORGANIZATION AND MANAGEMENT
The nature and meaning of management work, the major areas of management operation, concepts of organization and their applications, departmental and interdepartmental organization and relationships.

162. BUSINESS POLICIES AND MANAGEMENT
A study of the interrelationship and coordination of prior functional and managerial courses leading to the formulation and administration of policy. Comprehensive cases comprise the basic material. Prerequisite: Senior standing.

164. OPERATIONS MANAGEMENT
Operations in all types of organizations.

166. PERSONNEL ADMINISTRATION
An intensive review of the role and functions of the personnel department in business organizations, with particular emphasis on selection and placement, training and development, and union-management relations.

167. INDUSTRIAL RELATIONS
The course deals with union-management relations, focusing on behavioral and legal dimensions. Much of the course involves the analysis of actual union-management cases.

168. MANAGEMENT OF HUMAN RESOURCES
Concepts to foster the effective utilization of human resources within the business organization—human behavior and job performance, motivation theory, interpersonal and group relationships, the management of conflict and change.

171. INDUSTRIAL PSYCHOLOGY
Psychological fundamentals affecting individual and group behavior in organizational situations.

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF MARKETING

Ronald Stucky, Ph.D., *Chairman*

Professors: Paul L. Brown, Charles J. Dirksen, John Ewing, Ronald L. Stucky
Associate Professor: Albert V. Bruno
Visiting Professor: Arthur Kroeger

Required: 181, 182; plus any three of the following: 165, 167, 179, 183, 184, 185, 189, 191, 198, 199, Economics 180.

165. RETAILING
A study of trends in retailing, and of the forces of competition which constantly introduce dynamic change into retailing. Prerequisite: 181.

167. PURCHASING
The problems of procuring and coordinating a flow of raw materials, parts, and supplies with the needs of production and operation of industrial and commercial organizations. Prerequisite: 181.

178. INTERNATIONAL MARKETING
This course seeks to provide students with an understanding of the principles and practices of international marketing, beginning with small companies concerned only with exporting and ending with an examination of the multinational corporation. Emphasis is on decision-making, with considerable use of case studies.

179. SMALL BUSINESS ENTREPRENEURSHIP
Evaluating and beginning a new business venture including acquisition of existing enterprises.

181. PRINCIPLES OF MARKETING
An exploration of the nature of marketing, the analysis of marketing institutions, and the relationship between demand and marketing.

182. PRINCIPLES OF MARKETING
A continuation of 181. A study of pricing policies and public regulation of marketing.

183. MARKETING AGRICULTURAL PRODUCTS
A study of the types of agricultural products and their markets; middlemen and their services; price-determining factors; governmental agencies; cooperative marketing.

184. ADVERTISING
An analysis of the marketing psychological and social aspects of advertising. Prerequisite: 181.

185. SALES MANAGEMENT
An exploration of the systematic management of marketing activities, including the coordination of production and sales, product planning, and the administration of sales forces. Prerequisite: 181.

186. PRINCIPLES OF AGRICULTURAL PRODUCTS
A study of the American agricultural sector with emphasis on California; problem of production; comparative advantage of Western farm products on domestic and international markets; American contributions to world food supply.

189. MARKETING RESEARCH
A study of the application of marketing research methodology to the solution of business problems and of the survey method as used in marketing research. Prerequisites: 181, 182 and Senior standing.

191. INTERNSHIP
Opportunity for selected upper division students to work in local governmental units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS AND ADMINISTRATION
DEPARTMENT OF QUANTITATIVE METHODS

Zeb L. Vancura, Drs. (Econ.), *Chairman*

Professor: Chaiho Kim
Associate Professor: Zeb L. Vancura
Assistant Professors: B. Ballard Cheatham, S. Parikh, S. Y. Tsai, N. Pohl
Lecturers: Robert A. O'Brien, Jr., Mikes Sisois

Required: 100, plus any four of the following: 101, 102, 103; Economics 111, 112, Mathematics 21, 53.

14. MATHEMATICAL CONCEPTS I
Introductory course in analytical geometry and calculus, designed to provide an adequate base for further study of calculus and its application to business and economics. Includes functions, equations, graphing and the derivative with applications. Prerequisite: Two (2) years of high school algebra or equivalent.

15. MATHEMATICAL CONCEPTS II
A continuation of Mathematical Concepts I. Includes the integral, logarithmic and exponential functions with applications, calculus in higher dimensions. Prerequisite: 14 or equivalent.

16. MATHEMATICAL CONCEPTS III
Finite mathematics with emphasis on vectors and matrices. An introduction to computing concepts, operations, and programming.

40. STATISTICS
Basic concepts and methods of statistics, including probability, descriptive statistics, significance tests, estimation, sampling and correlation.

100. QUANTITATIVE METHODS I
An introduction to the application of mathematical models and techniques to problems of business and operations management. Prerequisite: 40 or equivalent.

101. QUANTITATIVE METHODS II
The elements of modern decision theory and the application of statistical decision concepts to a variety of industrial problems. A computer-oriented course. Prerequisite: 100 or equivalent.

102. QUANTITATIVE METHODS III
The computer utilization in management. Students develop their own programs to analyze and solve a number of business problems. Prerequisite: 100 or equivalent.

103. QUANTITATIVE METHODS IV
The methods, tools, and techniques of management science applied to the problems of operations management. Prerequisite: 100 or equivalent.

104. MANAGEMENT INFORMATION SYSTEMS
An overview of the field of management information systems. Topics include: difference between data and information; the relationship of information theory to management and systems theory; the information system design and specification; the implementation, evaluation, and management of an information system. Prerequisites: 40 and 100, or equivalent, and the completion of (or current enrollment in) at least one class in each of the functional areas of business, i.e., economics, accounting, finance, management and marketing.

191. INTERNSHIP
Opportunity for selected upper division students to work in local government units or firms. Prerequisite: Upper division standing and approval of the Undergraduate Committee.

SCHOOL OF ENGINEERING

Robert Parden, Ph.D., *Dean*

" . . . it is a Catholic school, yet those of other faiths are admitted also, and their religious opinions are not interfered with . . . to cultivate the heart . . . a care of morals, no less than intellectual improvement, are duties kept sacredly in view . . . " wrote John Nobili, S.J., first President of the University of Santa Clara.

To these goals of fundamental knowledge—an inquiring mind, good habits of self-discipline, aptly expressed by Santa Clara's first president—the professional school adds the requirement of preparation to make a specific social contribution. Engineering knowledge was once passed from generation to generation in the familiar pattern of the apprenticeship. With the increasingly complex applications of science which provided the groundwork for the Industrial Revolution, those who were charged with applying science to the needs of the society in which they live—engineers—turned to the universities for increased formal preparation in science and mathematics. To accelerate the rate at which knowledge of contemporary engineering applications could be learned above that of the apprenticeship, schools of engineering developed—extending the curriculum beyond science and mathematics to include the methodology of engineering applications. Not only were the traditional goals of the University embraced, but to them were added specific professional needs—needs not only of the individual, but of the profession he represents.

The function of engineering is to bridge science and society; to modify nature to meet the needs of society within the restrictions dictated by social, political, and economic considerations.

In order to act as the bridge between science and society, the engineer must be both knowledgeable in science and sensitive to the means which can be used to satisfy social needs.

The rapid expansion of knowledge and complexity in all areas of science and engineering suggests the need to both broaden the educational program and to increase specialization. Both goals cannot be accomplished in four years. Because of the wide variety of engineering opportunities, and because so many graduates determine to go on for further study, the School of Engineering undergraduate curriculum minimizes specialization and combines it with general study in the humanities and the social and natural sciences.

Students who desire an even more liberalized approach to engineering education may elect the Bachelor of Science in Engineering degree program which permits additional courses in the life sciences, business administration, or the social sciences.

One-third of those students who earn Engineering degrees undertake graduate work in engineering. An additional group pursues graduate work in law, medicine, business administration, city and regional planning, and other areas where an undergraduate preparation combining science, applied science, and the liberal arts is desired.

The engineering activity requires all types of people with different interests, preparations, and abilities. Regardless of the field of engineering, there is a pattern of assignments describing the kinds of jobs in which engineers engage. These include:

Technical Management in which the engineer directs a team of engineers—technicians, mechanics, and other skilled artisans.

Consulting in which the engineer alone, or as part of a firm, offers his services to a client needing professional counsel.

Design in which the engineer plans structures or systems, using his knowledge of scientific principles and the properties of materials.

Research and Development in which the engineer seeks additional knowledge about basic, physical phenomena and develops this knowledge into a product of service. In this assignment the engineer works closely with the scientist, and often their division of labor is difficult to identify.

Construction and Production in which the engineer translates the design engineer's drawings and specifications into structures, machines, or systems.

Teaching in engineering schools and colleges.

These are general assignments. Engineers also undertake assignments which require engineering background and experience, such as administration, management, and sales.

ENGINEERING AT SANTA CLARA

The undergraduate programs leading to the Bachelor of Science in Engineering and in Civil, Electrical, and Mechanical Engineering were first offered at the University of Santa Clara in 1912. They were accredited by The Engineers Council for Professional Development in 1937. Since that time the Master of Science in Electrical, and Mechanical Engineering, in Computer Science, Engineering Mechanics, Applied Mathematics, Public Works Administration; the Master of Science in Engineering, the Engineer's degree in Electrical, Mechanical, and the Doctor of Philosophy in Electrical Engineering programs have been added.

FACILITIES FOR ENGINEERING

The School of Engineering's laboratories are contained in three buildings in the Sullivan Engineering Center built in 1960. A lecture, seminar, and office building completes the complex.

Civil Engineering Laboratories

The Mechanics of Materials Laboratory contains testing machines which have a maximum capacity of 200,000 pounds. Hardness, fatigue, impact, torsion testing and photoelastic equipment are used for instruction and research. A wide selection of electric strain-gaging apparatus is available for static, dynamic, and repeated loads. These include regular and recording oscilloscopes, low-frequency strain recorders, and static strain indicators.

The Soil Mechanics Laboratory is equipped with the most recently developed apparatus for the physical testing of soils. The laboratory contains consolidation devices and triaxial compression testing units equipped for controlled stress, controlled strain, or cyclic loading, and equipment for sampling preparation, permeability tests, laboratory compaction of soils, and determination of water content, specific gravity, and consistency limits.

Electrical Engineering Laboratories

Laboratories and facilities are available for research and instruction in electrical machinery, electric controls and servomechanisms, computing; electrical measurements, electronics, and communications. Electrical power over wide ranges of frequency and voltage is available in every laboratory.

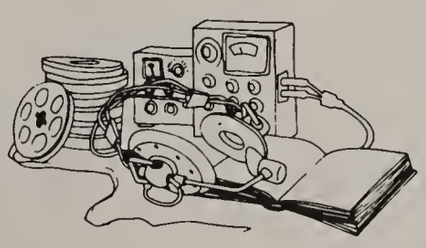
The Computing Laboratory contains a general purpose analog computer, recording and other accessory equipment. The analog computer provides the necessary facilities for the analysis of a wide variety of dynamical problems. The development of new computing devices and techniques is a part of this laboratory's activity. Experimental procedures are developed in laboratory sessions.

In addition to this analog computer facility within the Department, a general purpose digital computer is located nearby. Computing time is available for regularly scheduled instructional classes and for the research activities of graduate students and the Engineering faculty.

The Electronics and Communications Laboratories provide modern facilities in electronics, wire communications, radio communication, and microwaves. These laboratories are equipped with signal generators, oscillators, precision bridges, cathoderay oscilloscopes, Q-meters, a wave analyzer, an artificial transmission line, and other precision measuring equipment.

The Control Systems Laboratory is well-equipped with modern instruments for experimental studies of individual control-system components and of complete systems. In addition to the usual electronic test equipment, there is equipment for construction and test of many types of servos, modern oscillographic recorders, and numerous analog and digital components. From time to time additional special-purpose test equipment is constructed to facilitate studies of adaptive control systems, digital control systems, and carrier control systems, among others. This equipment is frequently supplemented by the use of analog and digital computers located in adjacent laboratories.

The interdisciplinary program in bioengineering utilizes facilities in Engineering, Biology, and Chemistry on campus; the medical research facilities of an adjacent hospital are appropriate for certain research interests.



Mechanical Engineering Laboratories

The Mechanical Engineering Laboratories include bench laboratories and a highbay facility for experimentation in free-fall systems, fluid mechanics, thermodynamics, heat and mass transfer, propulsion, combustion, power generation, and air conditioning.

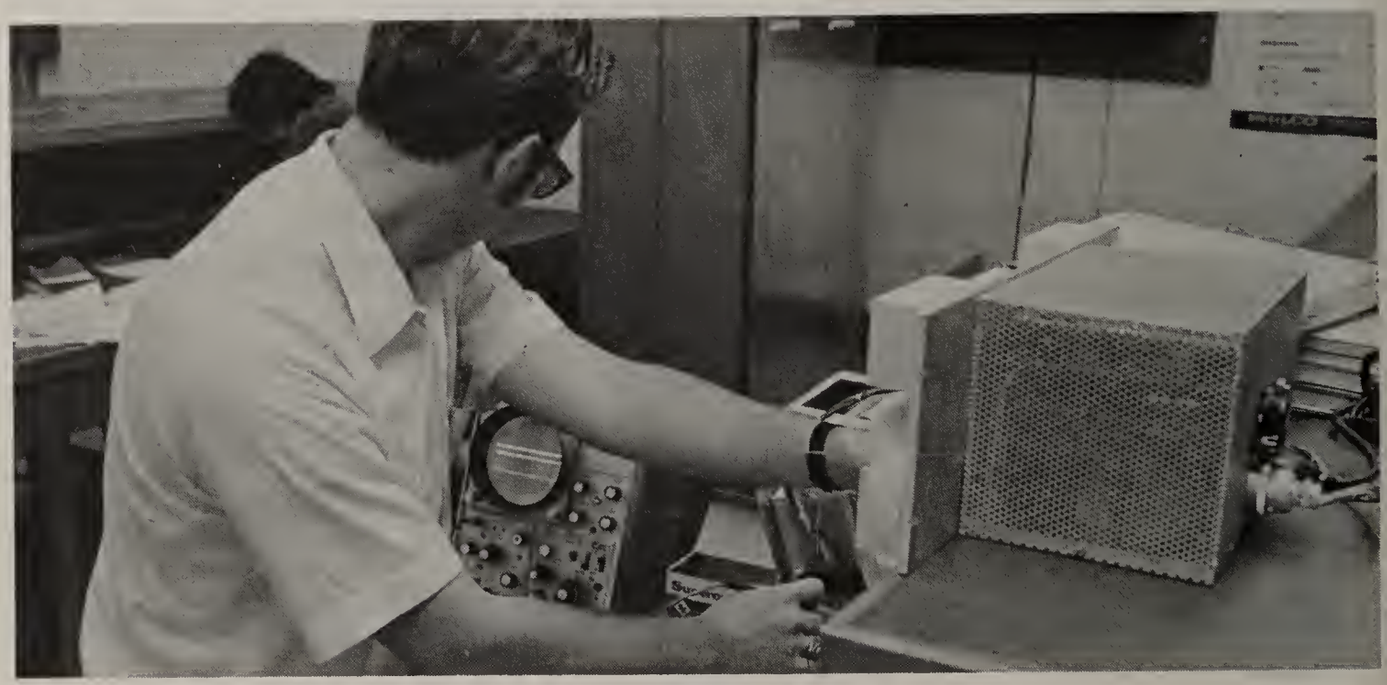
A variety of internal combustion engines installed on dynamometer stands can be used for studies in diesel and spark-ignited engine performance. An axial-flow fan with adjustable blades attached to a wind tunnel permits a variety of experiments to be performed in aerodynamics and turbomachinery.

The fluid dynamics area contains equipment to illustrate the principles of fluid flow and to familiarize the student with basic elements of hydraulic machinery and their associated instrumentation. Each device may be supplied directly from a pump or from a constant level standpipe with a 25-foot head.

Included in the Mechanical Engineering Laboratories is the equipment associated with electro-mechanical energy conversion. A variety of direct- and alternating-current machines, transformers, and associated equipment is available.

A unique approach is made in utilization of a complete metal processing facility. The first course in this area is taught by an engineer in order that the students become familiar with machine-tool processes from an engineering design point of view. The student further utilizes the shop facility during his thesis activities. The facility is also utilized for construction and maintenance of experimental apparatus.

Recent additions to the laboratory facilities are a calorimeter for determining human metabolic behavior, high vacuum fuel ignition apparatus, and electronic instrumentation for detailed study of combustion exhaust pollutants.



Data Processing Center

The Data Processing Center of the University is located in the Sullivan Engineering Center. HP 2100 and 3000 digital computers are used for teaching and research by faculty members and students. Introduction to computer programming is part of the freshman program. Several undergraduate courses require the use of this facility as part of their regular laboratory. Other computer facilities are available in the Electrical Engineering Laboratories.

RIGHTS RESERVED

The curriculum and regulations affecting students may be revised at any time at the discretion of the University administration.

UNDERGRADUATE PROGRAMS

The undergraduate programs lead to Bachelor of Science degrees in Civil, Electrical Engineering, Computer Science and Mechanical Engineering, and a more general program for the Bachelor of Science in Engineering degree.

The undergraduate degrees are earned by completion of 44 term courses with an overall grade average of at least C (2.0). Eleven courses are normally scheduled in each year.

The core program in which students enroll who are earning the Bachelor of Science in Civil Engineering, Electrical Engineering and Computer Science or Mechanical Engineering includes:

	FRESHMAN	
Mathematics 11	Mathematics 12	Mathematics 13
Chemistry 1	Chemistry 2 or 4	Physics 4
Engineering 10 (F,W,S)	Engineering 15 (F,W)	Elective
Elective	Elective	
	SOPHOMORE	
Mathematics 21	Physics 6	EECS 101 or ME 120
Physics 5	Engineering 42	Elective
Engineering 41	Elective	Elective
Elective	Elective	Elective
	JUNIOR	
EECS 101 or 102	EECS 102 or ME 121	Elective
ME 120 or 121	Elective	Elective
_____	_____	Elective
_____	_____	_____
	SENIOR	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	

Note: F,W, or S refers to the term in which a course is normally scheduled. These and other courses may be scheduled in any term as described in the schedule of courses published before each registration.

Electives: Ten humanities or social science electives and two unrestricted electives are to be scheduled. Three of the humanistic electives must be scheduled in the depart-

ment of Religious Studies. Three additional courses must be selected from the following list:

English 1, 2, 3, 11, 12, 13, 71, 73, 101, 102
Theatre Arts 1
Economics 1, 2, 12, 114

A twelfth, optional course can be scheduled in any term, each year, but it is not a degree requirement.

Students in electrical engineering and computer science should take EECS 101 as sophomores. Other engineering students may defer selected upper division core courses (courses numbered 100-200) to the junior or senior year, but the sooner they are taken the greater will be the flexibility in arranging upper division programs.

The following are the departmental requirements:

Civil Engineering: 10, 20, 115, 121, 130, 133, 135, 140, 141, 145, 198, Engineering 43 and 3 technical electives;
Electrical Engineering and Computer Science: 104, 111, 121, 131, 151, 161, 198, Physics 11, Applied Mathematics 106, 5 technical electives and 3 free electives;
Mechanical Engineering: 11, 15, 110, 111, 125, 135, 140, 142, 198, Engineering 43, 132, Applied Mathematics 106 or 118 and 2 free electives.

Senior Thesis. All students seeking a degree in Engineering are required to submit a thesis during their senior year.

The senior thesis provides a student with the opportunity to carry out an original investigation in an orderly fashion, the momentum of progress being supplied primarily by the student's enthusiasm, interest, and effort. The project is scheduled throughout the senior year and must be submitted before the student is admitted to his final examinations.

It is felt that a good undergraduate thesis:

1. Should involve an element of originality. It should be an investigation on the frontier of the student's knowledge.
2. Should require an element of design, an element of equipment assembly and utilization of instrumentation and a test program.
3. Should include successful evaluation of results utilizing sound test techniques and application of fundamentals of engineering. It is desirable that the evaluation require an extension of previous information to cope with the thesis project.

The Department chairman appoints a thesis advisor. The advisor will approve the thesis subject and method of approach, the outline of the thesis, initial drafts and final copy of the thesis as the project develops.

THE DA VINCI PROGRAM

This Bachelor's Degree program is designed to give each student a thorough grounding in the fundamentals of engineering, physical science, mathematics, the applied sciences, humanities and the social sciences, which are relevant to all branches of engineering and thus provide a permanently useful core of knowledge. Provision is made for a limited amount of specialization in a major field. This program provides a base for more advanced and specialized instruction at the graduate level. This program name, from the 15th century, was selected because Leonardo da Vinci personifies many of the goals of this new general education plan.

Da Vinci was known for his extraordinary power of illustration, not only in the fine arts but also for technical structures, for his familiarity with the properties of different substances and the varied possibilities of their use in the workshop, plus his research efforts using simple mathematical laws of nature. All of these skills made him an engineer in the most contemporary sense.

Three kinds of students particularly will find this new program attractive:

Those who want to be engineers, but don't want to specialize as undergraduates.

Those who don't know what they want to do but who want to keep their options open and be prepared and qualified for career opportunities in this fast-paced technological world.

Those who have non-engineer career objectives, but want a good, general, scientific, humanistic, technologically-sensitive education for the Seventies.

In a 44 term course program, half of the courses accommodate the engineering core program. The remainder of a student's program is selected from throughout the University. The program can satisfy a number of goals:

Permits its majors to go on for graduate work in medicine, law, business, teaching, and, of course, engineering.

Helps students select an area of speciality during their undergraduate years by a sampling of different careers through a mini-course program.

Offers a six months internship during the junior year (and summer) for academic credit and actual work experience.

Provides its recipients with a well-rounded general education before they enter a technologically dependent society.

A more detailed description of the program may be obtained by writing to the Dean of Engineering. Sample curricula are described, including career objectives in busi-

ness, environmental studies, medical instrumentation, engineering management, public administration and similar engineering-related careers.

SCHOOL OF ENGINEERING
TECHNOLOGY AND MODERN LIFE

—A Series of Courses Presented by the School of Engineering—
Open To All Students In The University

It has been proposed that man is losing control of his destiny because of rapid advances in technology. Local transportation systems are inadequate, costly, inconvenient or contribute to pollution. Power generation and distribution disturbs the landscape and creates air and water pollution. The computer is identified with the growing complexity of conducting our daily lives.

Technology has also strongly influenced communications, so that we are able to see and to be seen, instantly, around the world and in space. It has changed campaigning, and the reporting of prices in world markets. Our recreational patterns are changed by equipment, ground and air travel. Technology has an impact on every facet of our lives.

The impact of technology will not lessen in the future, it will accelerate. However, the nature of the impact can be altered. It will be altered as a greater number of people gain knowledge of the complex system within which technological, social, economic and political choices take place, and the impact of one choice upon the other.

Courses 1-30 are organized to systematically explore the interaction of technology and the environment. In addition, these courses will be presented in such a manner that the individual can reinforce his current interests, or further explore those parts of the system, our world, with which he might become involved in the future. Guest speakers and field trips, projects and term papers will facilitate this understanding.

1. ENERGY AND THE WORLD'S RESOURCES
Man needs energy to survive. But the misuse of energy may destroy him. Can this dilemma be resolved? How are gas, oil, water, coal, and the sun related to technology and the social, economic and political problems of generating electric energy?

2. **CONSUMER AND ENVIRONMENTAL CONCERNS**
An examination of consumer products in terms of purpose, performance, safety, resource utilization, and environmental consequences. Students will make a product evaluation as a course project. Legal, legislative, and ecological view points will be presented by guest speakers.

3. **INTRODUCTION TO COMPUTING**
History of computational needs and devices. Algorithmic problem-solving; flow charts. Basic Computer concepts and organization. Number systems and data types. This course is intended for non-engineering students. Prerequisite: High school algebra.

4. **ELECTRONIC SYSTEMS IN CONTEMPORARY SOCIETY**
The operating principles of various systems will be presented: radio, television, audio, telephone and computers. The national and international consequence of the networks they support will be discussed. Kit construction will be utilized.

5. **INTRODUCTION TO ENGINEERING**
Discussion of significant engineering problems of the present and future. Field trips. Open to all students to familiarize the engineering student with his chosen field and to acquaint the non-engineering student with the engineering profession.

6. **ECOLOGY AND POLLUTION**
The man-made world and its impact on the environment; ecology, energy of resources and the generation of power, air pollution and water pollution. The fundamental principles in these various areas will be explored and related to critical contemporary problems and issues.

7. **THE DYNAMICS OF SAILING**
The principles of physics are applied to the art of sailing. Concepts of lift and drag, relative motion and meterology are studied and related to the techniques and tactics of sailing.

8. **VISUAL THINKING**
The integration of student's imagination with their knowledge of materials and the forces which shape them. Intensive involvement in exercises and projects to expand creative abilities. Presented jointly by the engineering and arts faculty.

9. **ART AND TECHNOLOGY**
A survey of contemporary technology and science and their influence and application in art. Areas covered include systems, computers, structures and materials, dynamics and vibrations, electromagnetics, holography, and television. Prerequisite: 6, Visual Thinking, or permission of the instructor.

10. DESIGN
Principles of orthographic projection and descriptive geometry. Graphic analysis of lines, surface areas and volumes. Methods and solutions for simple design problems are presented.

12. DESIGN OF RESIDENTIAL DWELLINGS (2) MINI-COURSE
Properties of materials of construction and design of residential dwellings making use of Uniform Building Code and other design data books. Two lectures and one three hour laboratory per week and field trips. This course is open to sophomore, junior or senior engineering students with permission of the instructor.

15. PRINCIPLES AND APPLICATIONS OF DIGITAL COMPUTER SYSTEMS
History of computational needs and devices. Basic concepts and organization of stored-program digital computers. Algorithmic problem solving. Programming method and high level programming languages (emphasis on ALGOL). This course will include several major programming projects. Prerequisites: high-school algebra and trigonometry.

21. ENGINEERING SYSTEMS ENVIRONMENT (2) MINI-COURSE
The social-economic-political-technological-natural environment in which engineering systems are conceived, approved, financed, designed, constructed, and operated. For freshmen or sophomores.

22. ENERGY SYSTEMS ENGINEERING (2) MINI-COURSE
An introduction for freshmen and sophomore engineering students to engineering in general, and to the energy problem in particular.

23. ARCHITECTURAL DRAFTING (2) MINI-COURSE
The development of working drawings by which an architect conveys to the contractor the necessary information to complete a structure.

24. PROGRAMMABLE SCIENTIFIC CALCULATORS AND THEIR APPLICATIONS (2) MINI-COURSE
See course description on page 191.

101. PRINCIPLES OF ELECTRICAL ENGINEERING I
See course description on page 191.

102. PRINCIPLES OF ELECTRICAL ENGINEERING II
See course description on page 191.

120. FLUID MECHANICS I
Introduction to the analysis of fluid systems. Conservation principles for mass, energy, and momentum are emphasized, though some empirical correlation factors are introduced. Laboratory work emphasizes dimensional analysis as a guide to experimental studies of fluid flow. Prerequisite: Engineering 42.

121. THERMODYNAMICS I
Introduction to the application of the laws of thermodynamics to the analysis of thermofluid systems.

132. ECONOMICS OF ENGINEERING SYSTEMS
Economic systems. Time value of money. Basic techniques of economic analysis of engineering projects. Planning and capital budgeting. Regulatory agencies. Cost-benefit analysis.

190. INDEPENDENT RESEARCH
For those who are enrolled in the da Vinci program.

191. OFF-CAMPUS INTERNSHIP
Open to juniors during their spring term. The student spends the entire term off campus as an intern in a government agency, industry or organization of the student's choice. Written and oral presentations required.

197. DIRECTED READING
For students who wish to do intensive reading in areas not emphasized in course work.

199. INDEPENDENT STUDY (2) MINI-COURSE
Students select topic of interest, and make weekly written and oral presentations of their findings.

SCHOOL OF ENGINEERING
APPLIED MATHEMATICS PROGRAM

Gerald Markle, Ph.D., *Coordinator*

Lecturers: Stan Basin, Charles H. Chicks, Raul Conti, Wade H. Foy, William T. Hatley, Charles M. Hogan, Paul O. Scheibe, Jerome G. Sowul

The Applied Mathematics faculty is composed of members of several University departments, including Mathematics, Engineering, Chemistry, and Physics. With the exception of the three courses below, most of the Applied Mathematics Program is designed for graduate study. A complete listing of the offerings may be found in the *Bulletin of Graduate Courses and Degrees of the School of Engineering*.

106. DIFFERENTIAL EQUATIONS
First-order linear differential equations, systems of linear differential equations, homogeneous systems of linear differential equations with constant coefficients, the Laplace transform, the solution of differential equations by Laplace transform. Prerequisite: Mathematics 21.

108. PROBABILITY AND STATISTICS
Definitions of probability, sets, sample spaces, conditional and total probability, random variables, distributions, functions of random variables, sampling, estimation of parameters, testing hypotheses.

112. INTRODUCTION TO PROBABILITY THEORY
Definitions, sets, conditional and total probability, the binomial distribution approximations, random variables, important probability distributions, functions of random variables, moments, characteristic functions, joint probability distributions, marginal distributions, sums of random variables-convolutions, correlation, sequences of random variables, limit theorems.

118. NUMERICAL METHODS
Fortran programming concepts. Numerical solution of algebraic and transcendental equations, finite differences, numerical differentiation and integration, and solution of ordinary differential equations. Solution of representative problems on the digital computer.

SCHOOL OF ENGINEERING
CIVIL ENGINEERING AND ENGINEERING MECHANICS

Morgan Johnson, Ph.D., *Chairman*

Professor: Morgan Johnson
Associate Professor: Harold M. Tapay
Assistant Professor: Jon D. Raggett
Lecturers: Sam M. Cristofano, Norman A. Cyr, Richard B. DeLong, Davis E. Hartley, Richard A. Hughes, Myron M. Jacobs, Robert Lawrence, William J. Miller, Wilmot J. Nicholson, John O'Halloran, Bernard Ross, William R. Rugg, Urban J. Schreiner, Olney Smith, Samuel A. Sperry, Jeremy Wire.

Civil Engineering encompasses the fields of Transportation Engineering, Water Resources Engineering, Soils Engineering, and Structural Engineering.

Transportation Engineering relates to the planning, design, and construction of highways, airports, railroads and waterways, and specialized facilities such as tunnels, canals and canal locks, and harbor structures.

Water Resources Engineering deals with the utilization of water resources such as surface and ground waters, water supply and distribution, sewage collection and disposal, treatment methods, and flood control and irrigation projects.

Soils Engineering treats with the use of soils as engineering materials, including applications to pavements, building foundations, and earth structures.

Structural Engineering relates to structures such as bridges, industrial and commerical buildings, and various special purpose structures.

Municipal and Public Works Engineering is a field of application of principles of engineering mechanics, transportation, water resources, structures, and soils to the planning and administration of public engineering works.

10. SURVEYING
Survey instruments—their use, and care. Principles of topographic mapping, linear measurements, leveling traverses, curves, earthwork, boundary and public surveys. Field practice.

20. GEOLOGY AND HYDROLOGY
Development and formation of geologic materials. Significance of structure, land form, erosion, deposition. Stream and shoreline processes. Surface and subsurface water. Laboratory. Prerequisite: Sophomore standing.

115. MATERIALS ENGINEERING
Origin, manufacture, and processing of materials used in civil engineering. Physical properties of metals, wood, plastics, cement, concrete and other engineering materials. Corrosion and its prevention. Fire resistance.

118. CONSTRUCTION ENGINEERING I
Licensing. Drawings and specifications. Cost Analysis, estimating and bidding. Contracts. Bonds. Financing. Insurance. Labor Legislation. Planning and scheduling.

121. SOILS ENGINEERING
Origin, development and properties of soils. Classification of soils and applications of physics and engineering mechanics to soil as an engineering material. Water in soils. Compaction, stabilization, consolidation and bearing capacity. Laboratory. Prerequisites: 20 and E43.

130. STRUCTURAL ANALYSIS I

Fundamental concepts of structural analysis. Analysis of member actions and displacements of statically determinate structures. Displacements computed by direct integration and by energy methods. Analysis of actions and displacements of indeterminate structures by the flexibility and stiffness methods. Prerequisite: E43.

131. STRUCTURAL ANALYSIS II

Extension of the fundamental concepts of CE 130 to specific solution methods. Analysis of indeterminate frames by moment-distribution and slope-deflection methods. Additonal study of energy methods for calculating displacements. Introduction to influence lines, plastic analysis, and finite element analysis for use on digital computers. Prerequisite: CE 130.

133. STRUCTURAL STEEL AND TIMBER DESIGN

Analysis and design of steel and timber structures. Attention will be given to specific problems, assumptions, and typical building types associated with each building material. Emphasis on detailing connections. Introduction to stability of columns and plates. Complete design of minor steel and timber structures will be performed in laboratory. Prerequisite: CE 130.

135. REINFORCED CONCRETE DESIGN

Analysis and design of reinforced concrete structures. Introduction to theory of pre-stressed concrete. Prerequisite: 130

136. ADVANCED CONCRETE DESIGN

Theory and practice of the design of bridges and other concrete structures. Design of prestressed concrete members. Prerequisite: 135.

137. FUNDAMENTALS OF EARTHQUAKE ENGINEERING (4)

Causes and characteristics of earthquake motions. Introduction to the dynamics of single- and multi-degree-of-freedom lumped mass systems. Introduction to finite element modeling of framed structures. Idealization of real structures and analysis of idealized models by time-history and response spectrum methods. Special considerations for earthquake resistant design of steel, timber, and reinforced concrete structures.

138. FOUNDATIONS ENGINEERING

Surveying, mapping, and foundation exploration; slope stability and settlement analysis; spread foundations; piles and caissons; earth-retaining structures loads on underground conduits; subsurface construction. Prerequisites: 121 and 135.

139. HYDROLOGY AND DRAINAGE

Precipitation, evaporation, transpiration, runoff and infiltration. Drainage areas, concentration points, and storage. Sub-surface movement and recharge.

140. WATER RESOURCES ENGINEERING
Concepts of various aspects of water resources: storm and flood waters, ground waters, water supply and distribution, sewage collection and disposal, and irrigation. Interrelationship of all aspects. Importance of water resources to the

141. HYDRAULIC ENGINEERING
Principles of hydraulics; closed conduit and open channel flow; transitions and structures; culverts; sedimentation and tractive resistance.

142. WATER RESOURCES DESIGN
Design of storage facilities, water distribution systems, storm and sanitary sewer systems, treatment plants, and swimming pools. Prerequisites: CE 140 and 141.

143. ENVIRONMENTAL ENGINEERING
Public control of water-born and air-born diseases; vector and weed control; pesticides; food protection. Management of solid wastes; air pollution control; water quality control. Recreational facilities and the residential environment. Planning, organizing, and managing environmental programs. Prerequisites: Biology 9 or Chemistry 2 or equivalent; junior or senior status.

144. ENVIRONMENTAL PLANNING
Physical and esthetic features of the environment and their influence on planning. Soil, geologic, and flooding hazards. Preservation of open space and amenities. Air quality; water quality, congestion. Applications to project planning. Prerequisite: Junior or senior status.

145. TRANSPORTATION ENGINEERING
Transportation as a system to meet the needs of society in movement of people and goods. Interaction between transportation facilities and the community. Engineering aspects of rail, highway, air and water carriers and routes. Modern concepts and technology.

146. URBAN AND REGIONAL PLANNING
Principles of city and regional planning. Organization and functioning of planning agencies. Urban and regional problems and their influence on planning. Features of general plans. Prerequisite: Junior or senior status.

147. PAVEMENT DESIGN
Geometric and structural design of the highway. Urban street layout and details. Layout and design of airport runways, taxi-ways and airports. Railway track and track and roadbed. Pacing materials. Prerequisites: 121 and 145.

148. CONSTRUCTION ENGINEERING II
Construction methods and equipment. Legal aspects of construction. Construction site organization. Prerequisites: 133 and 135.

190. INDEPENDENT RESEARCH
Open to Departmental Scholars only.

191. INTERNSHIP
An option for graduating seniors to spend the entire winter quarter off campus with an engineering agency.

193. PROJECT DESIGN
Each senior carries a project of his choosing from inception to plans.

198. THESIS AND SEMINAR
Senior students conduct an independent engineering investigation and report it in formal style.

199. INDEPENDENT STUDY
Open to Departmental Scholars only.

SCHOOL OF ENGINEERING ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Shu-Park Chan, Ph.D., *Chairman*

Professors: Shu-Park Chan, Dragoslav D. Siljak
Associate Professors: Timothy J. Healy, Henry P. Nettesheim, Jack A. Peterson, Raymond B. Yarbrough
Assistant Professors: Frederick W. Clegg, William R. Dunn, Jr.
Lecturers: Jack Armstrong, Hal Barraclough, Yaakov Bar-Shalom, James Baseji, J. D. Bruce, Hans Camenzind, Wei Chen, John Choma, George Condas, Conrad Dell'Oca, Alan Grebene, Wayne Hathaway, Jan Janku, Roy Jensen, Michael Kelly, Richard Koralek, Theodore Laliotis, Donald Leach, Tuk-Hop Lee, Charles Leis, Robert Linebarger, Dale Lumb, Gilbert Masters, John McConnell, Enjeti Murthi, Howard Russell, Edward Snow, George Thaler, Frank Tung, Anthony Wang, Thomas Whitney, Albert Yu

Electrical Engineering and Computer Science includes the design, construction, and operation of equipment for generation, transmission, and utilization of electrical energy. Electrical engineers and computer scientists are concerned with all phases of the electrical transmission of information such as radio, television, and telephone. Data processing equipment and computers used by business, industry, and government are

included in their major area of interest. Much of the equipment used in maintaining our national security is powered and controlled by electric and electronic mechanisms.

The computer science program (which includes Engineering 15, EECS 22, EECS 121, EECS 122 and EECS 123) permits undergraduates in Engineering, as well as other schools of the University to take courses dealing with various aspects of computer science during all four years of their baccalaureate program. Students wishing to acquire an even more extensive background in computer science may make special arrangements to take graduate computer science courses as well.

The Computer Science program is supported by the facilities of the University Computing Center and the Digital Systems Laboratory. The principal computer for academic functions in the Computing Center is a Hewlett-Packard 2120. An HP-3000, used primarily for administrative data processing, is also available. The Digital Systems Laboratory provides complete facilities for experiments and projects ranging in complexity from a few digital integrated circuits and other electronic components to complete computer systems. A unique feature of the Laboratory is the availability of take-home "breadboard" facilities which permit students to design, construct, and test any sort of digital module or system using the most modern integrated circuits available at home, in the dorm, or even at a ski lodge. The laboratory also contains two small general purpose computers manufactured by Digital Equipment Corporation, a PDP-5 and a LINC-8, provided with special equipment designed and built at the Laboratory to facilitate easier student experimentation with these computers.

22. INTRODUCTION TO COMPUTER AND DATA STRUCTURES

Covers, to a greater extent than is possible in Engineering 15, some of the most important details of computer systems and their use. Arithmetic, control, memory, and input/output functions are examined in depth. Major types of data structures uses in the organization of information for computer processing are introducts. Prerequisite: E15.

24. PROGRAMMABLE SCIENTIFIC CALCULATORS AND THEIR APPLICATIONS

Sophisticated programmable scientific calculators such as Hewlett-Packard's HP-9100 and HP-65 models have already largely replaced the slide rule and are potentially among the most powerful tools available to engineers, scientists, businessmen, and others who work extensively with numbers. Detailed functional characteristics and full instruction sets of the HP-9100 and HP-65 will be presented. Widespread applications of these machines to engineering, scientific, commercial, and recreational problems will be explored in detail. Prerequisite: High-school algebra and trigonometry. Additionally, some previous programming experience (through previous or concurrent enrollment in E3 or E15, for example) is preferred but not required.

101. PRINCIPLES OF ELECTRICAL ENGINEERING I

The physical basis and mathematical models of circuit components and energy sources are introduced. Circuit theorems and methods of analysis are applied to D.C. and A.C. circuits. Laboratory. Prerequisites: Math 21, Physics 7, E41.

102. PRINCIPLES OF ELECTRICAL ENGINEERING II

Electronic devices are introduces with applications to amplifiers, digital circuits and instrumentation. The principles of energy conversion are developed and applied to electric machinery. Laboratory. Prerequisite: EECS101.

104. ELECTROMAGNETIC FIELDS

The study of static electric and magnetic fields follows an introduction to transmission lines. Magnetic and dielectric material properties and the solution to static field problems are included. Introduction to Maxwell's Equations. Prerequisites: EECS101, Physics 7.

105. ELECTROMAGNETIC WAVES

The continuation of 104. The propagation of waves as governed by Maxwell's equations are studies. Wave penetration, fundamental wave guides and antennas are included. Prerequisite: EECS104.

108. MICROWAVE THEORY AND TECHNIQUES

A combined lecture and laboratory course covering generation, propagation, and detection of microwave energy. Experiments on klystrons, impedance measurements, antenna radiation patterns, and the characteristics of passive microwave devices. Laboratory. Prerequisite: EECS104.

111. MATRIX ANALYSIS OF NETWORKS AND SYSTEMS

Review of matrix algebra, elementary network topology, matrix formulation of system equations, network theorems, Laplace transform techniques, sinusoidal steady-state analysis, frequency response plots, two-port network theory, active two-port devices, state-space analysis methods, computer-aided analysis. Prerequisite: EECS101.

112. MODERN NETWORK SYNTHESIS AND DESIGN

Approximation. Synthesis of passive and active networks. Sensitivity and tolerance analysis. Computer techniques for network designs using optimization. Prerequisite: EECS111.

121. DIGITAL SYSTEM DESIGN AND ANALYSIS

Basic switching concepts. The concept of logical signals. Survey of digital logic circuits including MSI circuits. Number systems. Digital representation of information. Boolean algebra. Switching network description. Introduction to digital computer organization. Prerequisites: E15 and EECS102.

122. COMPUTER SYSTEM ORGANIZATION AND DESIGN
Integrating large numbers of digital modules into a complete automatic computing system. Magnetic core and LSI semiconductor memory systems. Hardware sequences; microprogramming approaches. Input/output subsystem organization and management; interrupt-driven and DMA transfers. Prerequisites: EECS22 and EECS121.

123. THEORY AND TRANSLATION OF COMPUTER LANGUAGES
The theory and detailed characteristics of artificial languages to facilitate man-computer communications. Assembler algorithms; associated procedures for symbol table management and look-up, memory allocation, and code generation. Theory of formal languages. Prerequisite: EECS22.

131. CONTROL SYSTEMS I
Detailed considerations of the mathematical theory of linear feedback control systems. Topics include: transfer functions, relation between time and frequency domain characteristics; analysis and design, using root locus concepts and frequency response plots; performance criteria and sensitivity; stability. Laboratory. Prerequisite: Applied Mathematics 106.

132. CONTROL SYSTEMS II (2 units)
Continuation of 131. Controllability and observability. Stabilization by state variable feedback. Optimal linear regulator. Prerequisite: EECS131.

141. COMMUNICATIONS SYSTEMS
Signal description. Fourier transforms, filtering, Hilbert transforms, noise description, linear modulation and demodulation, exponential modulation and demodulation, pulse modulation, information theory. Prerequisite: EECS151.

151. ELECTRONICS I
Electron ballistics, emission theory, semiconductor theory. Extension of the study of electronic amplifiers to include wideband and radio frequency amplifiers, and the principles and applications of feedback. Laboratory. Prerequisites: EECS 102, 111.

152. ELECTRONICS II
Continuation of 151 to develop features of high-frequency power amplifiers, oscillators, modulation systems. Communications systems. Introduction to non-linear electronic circuits. Laboratory. Prerequisite: EECS151.

153. ELECTRONICS III
Survey of integrated circuit processes; integrated components. Monolithic linear and digital integrated circuit analysis and design. Prerequisite: EECS152.

161. ELECTROMECHANICAL ENERGY CONVERSION
Introduction to energy conversion equations and applications to transducers, rotating amplifiers. Machine dynamics, transfer function realization, and modeling of physical electromechanical systems. Laboratory. Prerequisite: EECS102.

162. ELECTRIC POWER SYSTEMS (2 units)
A study of systems which transmit electric energy from the point of generation to the point of use. Three phase systems. Faults. Reliability. Load flows.

190. UNDERGRADUATE RESEARCH
Open to Departmental Scholars only.

198. SENIOR THESIS AND SEMINAR
Investigation of an approved electrical engineering problem and preparation of suitable thesis covering the investigation. Conferences as required. The seminar will be presented by the student during the term, covering suitable topics.

199. INDEPENDENT STUDY
Open to Departmental Scholars only.

MECHANICAL ENGINEERING

Richard K. Pefley, M.E., *Chairman*

Professors: Richard K. Pefley, Michel A. Saad
Associate Professors: Eugene J. Fisher, R. Ian Murray, Stein Weissenberger
Senior Research Associate: Dah Yu Cheng
Lecturers: Peter G. Aline, Gene J. Antonides, Robert P. Caren, William G. Holmes, Norman G. Kulgein, Richard T. Lahey, Peter A. Szego, Frank E. Talke, Clyde E. Taylor, John R. Viegas, Marcel Vinokur

Mechanical Engineering provides the necessary background to design mechanical systems that are effective, efficient, economical and safe. In the Mechanical Engineering Department emphasis is placed on two phases of mechanical engineering: (1) design of machines and systems for their control; (2) design and analysis of thermofluid systems for the effective utilization of energy. Educational efforts are channeled to impart to prospective engineers not only a fundamental competence but also a versatile perceptive capability in analysis of engineering systems.

11. DESIGN II
Influence of material selection and manufacturing processes on engineering design.

15. MATERIAL SCIENCE AND MANUFACTURING PROCESSES
Physical basis of the electrical, mechanical, and thermal behavior of solids. Relations between structural and physical properties. Theory of dislocations, vacancies, and other defects and their effect on physical properties. Illustrations of the relationship between material selection, manufacturing processes and design. Laboratory. Prerequisite: Physics 6.

110. MACHINE DESIGN I
Analytical and graphical analysis of linkages utilizing statics, dynamics, and strength of materials. Machine elements studied will include electromechanical and pneumatic-hydraulic components. Prerequisites: 11, Civil Engineering 116.

111. MACHINE DESIGN II
Continuation of Machine Design I. System analysis and synthesis will be studied, including control systems. Solutions to design problems will be critically evaluated by employing case studies. Prerequisite: 110.

112. ADVANCED MACHINE DESIGN
Continuation of Machine Design II—Emphasis is placed on design projects. Integration of various components into a complete machine is studied. Prerequisite: M.E. 111.

115. DESIGN OF THERMAL SYSTEMS
Characteristics of power plant components, mathematical modeling and system.

125. THERMODYNAMICS II
Thermodynamic potentials and availability concepts. Nonreactive mixtures. Reactive mixtures with emphasis on the thermodynamics of combustion and chemical equilibrium. Prerequisite: 121.

135. HEAT TRANSFER
Introduction to the concepts of conduction, convection, and radiation heat transfer, and application of these concepts to engineering problems. Prerequisite: 121.

136. TRANSPORTATION SYSTEMS
Evaluation of various modes of transportation systems, including methods of propulsion. Economic and feasibility studies.

138. NUCLEAR REACTORS
Introduction to principles underlying nuclear power reactor design. Senior standing required.

140. ADVANCED DYNAMICS
Derivation and solution of equations of motion of linear dynamic systems. Stability, introduction to feedback control systems, vibration and noise. Prerequisite: Engineering 42.

142. FLUID MECHANICS II
Introduction to gas dynamics. Concepts of lift and drag. Mechanics of laminar and turbulent flow. Introduction to boundary-layer theory. Application to selected topics in lubrication theory, aerodynamics, turbomachinery, and pipe networks. Prerequisite: 120 and 121.

198. THESIS AND SEMINAR
Investigation of an engineering problem and writing of an acceptable thesis. Conferences as required. Prerequisite: Senior standing in Mechanical Engineering.

199. INDIVIDUAL STUDY
By special arrangement with the Chairman of the Department. Credit by arrangement.

ETHNIC STUDIES

Cyril E. Edwards, M.A., *Director*

Ethnic Studies provides an educational process through which operational methods are developed for solving contemporary social and human problems. The methodology of the program ranges from objective analysis through the process of intra-encounter. There is a blending of theory with practice through field-work experiences. Since Ethnic Studies utilizes the experiences of groups who do not enjoy the prerogatives accorded to the dominant population in this country, it serves to provide all students with a more accurate and relevant picture of themselves and their progenitors than could otherwise be obtained.

Emphasis will be on the nature of ethnocentric value systems, the role of the individual in maintaining them and their implications for the future. This focus will be sharpened by a study of the ways in which the individual can initiate communication, interaction, understanding and coexistence on a positive humanistic level with ethnic groups other than one's own.

2,102. RACISM IN AMERICA
An examination of functional racism in contemporary America. The disparity between the ideology and the reality of America, and its impact on the socialization process; institutional and personal racism; the basis of relations between whites and nonwhites; mechanisms for the neutralization of racism.

Students will become more conscious of race as a policy issue which must be confronted.

11,111. THE CHICANO EXPERIENCE
An analysis of the Chicano's social, political, educational, religious, and economic experiences within the framework of America.

13,113. SOURCES OF CHICANO THOUGHT
An investigation of the relationship of contemporary Chicano leaders concepts with Nauhatl and other earlier Mexican philosophies.

16,116. POLITICAL AND ECONOMIC DEVELOPMENT IN MODERN AFRICA
An in-depth examination of selected problems in African political and economic development.

17,117. CHICANO POLITICAL HISTORY
An examination of the political, social, economic and cultural patterns extending north from Mexico.

20,120. COMMUNITY-WORK PROJECT
An opportunity for selected students to work in a community-based project.

24,124. COMPARATIVE BLACK THOUGHT
A comparative analysis of selected writings in Black nationalist thought in America and Africa from the 19th century to the present.

25,125. PAN-AFRICANISM
A study of the historical development of the Pan-Africanist movement from 1900 to the formation of the Organization of African Unity (OAU). An indepth study of the OAU.

26,126. WEST AFRICA: 1800 TO INDEPENDENCE
An analysis of such factors as colonization, European penetration and African resistance, and the slave trade which contributed to the rise of nationalist liberation movements and modern state systems.

28,128. RACE AND SOCIETY IN AFRICA
An analysis of the struggle of Africans against white minority rule in Southern Africa, e.g., Angola, Mozambique, South Africa, and Guinea-Bissau; with an examination of the historical, political, social, and economic context of the liberation movements.

29,129. BLACK PERSPECTIVES
An analysis of the respective perspectives of Black American writers on Africa and African writers on Black America.

31,131. THE BLACK WOMAN
An examination of the historical role of Black women and an in-depth exploration of contemporary issues germane to Black women in America.

34,134. INTRODUCTION TO THE STUDY OF AFRICA
A course designed to give students who know little about Africa a general knowledge of traditional society, the colonial period, and contemporary Africa. The approach is multi-disciplinary.

35,135. ANTI-BLACK THOUGHT IN AMERICA
An examination of a variety of ideas and racial theories used to rationalize the segregation of blacks from the mainstream of American society.

36,136. CREATIVE PERFORMING THEATRE
An introduction to and development of basic performance principles and techniques through expathic portrayal of ethnic material.

41,141. AFRICAN PHILOSOPHICAL IDEAS
The course will begin with a study of philosophical beliefs in traditional African society and end with an examination of the attempt at a philosophical synthesis of the exigencies of Africa's interaction with Europe during the colonial period.

45,145. CONTEMPORARY EVENTS
An analysis of selected contemporary issues through the method of an active-participant.

46,146. MEXICO AND THE USA
A study of the comparative development of Mexico and the USA with emphasis on California.

49,149. MEXICAN AMERICAN LITERATURE
A survey of Latino writers with an emphasis on contemporary themes.

50,150. LITERATURE AND SOCIETY IN AFRICA
Selected literary works by African authors are examined as sources of social and political commentary on contemporary African society.

51,151. SEMINAR IN ETHNIC STUDIES
An examination of selected principles of American society with particular reference to their relevance for America's minorities.

52,152. GOVERNMENT AND POLITICS IN LATIN AMERICA
The nature and development of U.S. involvement in the political systems of Latin America.

53,153. THE CHICANO IN EDUCATION
An examination of different aspects of the Chicano experience in America's educational institutions.

54,154. THE CHICANO IN CONTEMPORARY SOCIETY
An analysis and interpretation of current Chicano activity, its intellectual sources, its development and its effect on the Mexican American community.

55,155. PEOPLES OF THE SOUTHWEST
An examination of the different peoples who settled the Southwest and their impact on each other.

56,156. MESOAMERICAN HISTORY
A study of the development of pre-Colombian mesoamerica; the social, economic, political, and cultural institutions will be examined.

198.
Directed Reading and Research in Ethnic Studies.

MILITARY SCIENCE

Jerome J. Rogers, Lt. Colonel, *Professor of Military Science*

The University maintains a Senior Division unit of the Army Reserve Officers' Training Corps (ROTC). The program is specifically designed to give college men and women "on-campus" training and experience in the art of organizing, motivating, and leading others. It includes instruction to develop self-discipline, physical stamina and bearing—qualities that are an important part of leadership and that contribute to success in any career.

All courses offered by the Military Science Department are fully accredited and applicable toward fulfilling academic requirements for graduation. Through this voluntary program, the University offers each eligible man and woman the opportunity to obtain an officer's commission while earning his or her college degree. By combining regular academic pursuits with the Military Science curriculum, the ROTC graduate is well equipped to assume roles of leadership and command responsibility as an officer in the U.S. Army. Uniforms and textbooks are furnished by the Government without cost to the student.

ACADEMIC CURRICULUM

The Military Science core curriculum consists of two lower division courses (Military Science 13 and 23) and three upper division courses (Military Science 133, 135 and 143). The Dean of the student's major college or school will determine whether the military science core courses fulfill humanities, social sciences, or free elective require-

ments. It is imperative that the student coordinate closely with and satisfy the academic requirements of his major college or school. In addition to the core curriculum, the Military Science student is required to take two electives approved by the Professor of Military Science. These electives coincide with and fulfill existing humanities and social sciences elective requirements of the colleges and schools within the University. The elective requirements are: One course in American Military History (Military Science 10 or an equivalent course approved by the Professor of Military Science), and one course in international relations (Political Science 98 or an equivalent course approved by the Professor of Military Science).

BASIC PROGRAM

The basic, lower division courses, Military Science 13 and 23, normally taken during the freshman and sophomore years, provide the student an opportunity to participate in the ROTC program without incurring a military obligation. Participation enables the student to decide whether or not he or she desires to apply for the Advanced Program, which leads to an officer's commission.

Veteran students, who have had one or more years of active military service, and students who have attended a military school may be exempted from taking the lower division courses and may enroll directly into the advanced, upper division courses. Other students may elect to fulfill the lower division requirement by attending a six-week, concentrated course of instruction during the summer at Fort Knox, Kentucky. This is normally done between the sophomore and junior years. Participants in the basic summer camp program are provided room and board, travel expenses to and from the camp, and $516 for the six weeks at camp. Although students may satisfy lower division requirements by alternative means described above, only those students enrolled in the on-campus courses will receive academic credit.

ADVANCED PROGRAM

The student who desires to enroll in the advanced upper division program, normally taught during the junior and senior years, must apply and be accepted. Only those students who have completed the basic lower division courses or who have otherwise satisfied the Basic Program requirements described above, are eligible to enter the Advanced Program.

The Advanced Program consists of two upper division courses, Military Science 133 and 143, taught on-campus and one summer practicum, Military Science 135, conducted during the summer at Fort Lewis, Washington. Students accepted for the Advanced Program receive $100 per month subsistence allowance during the school year. In addition, uniforms and textbooks are provided without cost. During the summer camp the student receives room and board, travel expenses to and from the camp, and $598 for his six weeks' duty at camp. Veteran students enrolled in the ROTC program receive the above in addition to their Veterans Administration benefits.

Students accepted for the advanced program are required to accept a commission, if offered, and to serve on active duty for a period of two years, followed by four years in a reserve status.

TWO-YEAR ROTC PROGRAM

The Department of the Army offers students who enter the University with advanced academic standing the opportunity to receive a commission after two years of on-campus ROTC training. A student can take advantage of this opportunity by attending a basic summer camp after his sophomore year and then completing the Advanced Course, ROTC, in his junior and senior years. The basic summer camp prior to enrollment in the Advanced Program substitutes for the first two years of the normal four-year program. Except for this substitution, the two programs are identical.

A student accepted into this program or the advanced program obligates himself to accept a commission, if offered, and to serve on active duty for a period of two years, followed by four years in a Reserve Component. Prerequisites for enrollment in this program are as follows:

a. Be physically fit and mentally qualified.
b. Be of sound character.
c. Be at least 17 years old. A student must not be more than 28 years old when commissioned.
d. Be recommended by a board of officers.
e. Have successfully completed the basic summer camp training in lieu of the basic Military Science curriculum, or be a veteran with one or more years of active military service.

ARMY ROTC SCHOLARSHIP PROGRAM

The Army ROTC scholarship program is designed to offer financial assistance to outstanding young men and women in the four-year Army ROTC program.

Each scholarship provides free tuition, textbooks and laboratory fees in addition to a subsistence allowance of $100 per month during the school year for the period the scholarship is in effect. During summer camp the scholarship student receives the same allowances and expenses described above for advanced program students. The scholarships are provided under provisions of Public Law 88-647, The ROTC Vitalization Act of 1964.

Scholarships may be awarded for one, two, three or four years. Four year scholarships are open to all students entering Army ROTC as freshmen, while the other scholarships are available to those students who have successfully completed one, two or three years of ROTC studies.

The scholarship recipient is expected to maintain acceptable standards of academic achievement and personal conduct. Scholarship students must rank in the upper third of their Army ROTC class and continuously demonstrate leadership potential. The records of scholarship recipients will be reviewed each quarter by the Professor of Military Science to determine the student's eligibility for continued financial assistance.

Recipients of Army ROTC scholarships are required to serve at least four years on active duty unless released earlier by the Secretary of the Army. Any of the six year obligation period remaining after release from active duty must be spent in a reserve status.

Detailed information on the scholarship program may be obtained from the office of the Professor of Military Science at the University.

THE ARMY ROTC FLIGHT INSTRUCTION PROGRAM

The Army ROTC Flight Instruction Program is offered to students in the second year of the Advanced Program, usually the senior year of college.

Under this program, the Army will pay for flight training for selected ROTC students who have an aptitude for flying and who meet required qualifications. The student is also reimbursed for travel costs from the University to the local training site at the rate of eight cents per mile.

The student receives a basic introduction to the principles of flying in small, fixed-wing aircraft. He learns the principles of navigation, map and compass reading, take-offs and landings, and will accrue many hours of solo flying. ROTC flight instruction is given by a civilian flying school, near the university, which has the approval of the Federal Aviation Agency (FAA), the Department of the Army, and the University.

The program is conducted as an extracurricular activity. Instruction is normally completed in four months, but up to nine months is allowed in special cases. Each student receives 35 hours of ground instruction and 36½ hours of instruction in-flight. Three additional hours of instruction may be authorized to meet individual needs. Little additional work is required to qualify for a private pilot's license.

COMMISSIONING IN THE UNITED STATES ARMY RESERVE AND REGULAR ARMY

Students who complete the Advanced Program are eligible for appointment and commission by the President of the United States as officers in the United States Army Reserve. Reserve commissions are tendered in all branches of the Army, except the Medical, Dental, Veterinary, Judge Advocate, and Chaplain Corps. The branch in which a student is commissioned is determined by his preference, leadership potential, academic background, recommendations of the faculty and staff, and needs of the

service. A newly commissioned officer will normally attend his branch school upon being ordered to active duty. Current laws and regulations require each Advanced Program student, upon receipt of his commission, to complete a two-year tour of active duty and to serve in a reserve component for a subsequent period of four years. Delays in reporting to active duty may be granted to students if they desire to obtain an advanced degree. A student may be delayed from call to active duty for a period not to exceed four years, provided he is enrolled in a full-time program of instruction leading toward an advanced degree and remains in good academic standing with the institution in which enrolled. No additional obligation is incurred by this delay for graduate training.

A student who receives his baccalaureate degree and has been designated a "Distinguished Military Graduate" by the President of the University and the Professor of Military Science may, upon application, be commissioned directly in the Regular Army.

LEADERSHIP LABORATORY

Leadership laboratory periods are required for all Military Science core courses. Participation and performance during lab periods is reflected in the student's course grade. Labs are designed to provide the student the opportunity to apply to actual situations the leadership and management principles, skills, and techniques taught in the classroom. Labs are normally conducted on Wednesday mornings with one weekend field trip per quarter. Leadership laboratory periods are interesting and challenging and include activities such as rappelling, terrain navigation, patrolling, cross country skiing, river rafting, marksmanship, drill and tactical field training exercises.

Basic Core Courses

13. FUNDAMENTALS OF LEADERSHIP AND MANAGEMENT I, II, III
Four units. The historical growth, development and organization of the Army to include the magnitude of management implications, development of leadership and management abilities through lectures, discussion, and practical exercises. The course covers three quarters, granting one, one, and two units of credit, respectively. One class hour and one leadership laboratory period per week during the first and second quarters and two class hours and one leadership laboratory period per week during the third quarter. A grade is awarded at the end of each quarter. Final grade for the course consists of an average of the grades for the three quarters.

23. APPLIED LEADERSHIP AND MANAGEMENT I, II, III
Four units. Operations of the basic military team to include military geography and use of maps and aerial photographs. Functions, duties and responsibilities of junior leaders and managers. Continuing development of leadership and managerial abilities through practical exercise. The course covers three quarters, granting one, one, and two units of credit, respectively. Two class hours and one leadership laboratory period per week during the first and second quarters and one class hour and one leadership laboratory period per

week during the third quarter. A grade is awarded at the end of each quarter. Final grade represents an average of the grades for the three quarters.

Advanced Core Courses

133. ADVANCED LEADERSHIP AND MANAGEMENT I, II, III

Five units. Case studies in leadership and management. Delegation of authority and responsibility, span of control, planning, coordinating, and decision-making. Development of the student's ability to express himself clearly and accurately with emphasis on analysis of military problems, evaluations of situations, and preparation and delivery of logical solutions. Continual development of individual abilities through practical exercises. The course covers three quarters, granting one, two, and two units of credit, respectively (two class hours and one leadership laboratory period per week). A grade is awarded at the end of each quarter. Final grade for the course consists of an average of the grades for the three quarters. Prerequisites are Military Science 13 and 23 or alternative satisfaction of Basic Program requirement.

135. PRACTICUM IN LEADERSHIP AND MANAGEMENT

Five units. Six weeks of full-time, intensive training in leadership and management. Training is conducted during the summer at Fort Lewis, Washington. The student's ability to lead his unit and to plan and conduct military operations is thoroughly evaluated. The student is provided the opportunity to apply the theories and principles he has learned in the classroom to actual situations. Prerequisite: Military Science 133. The student receives a PASS/FAIL grade.

143. SEMINAR IN LEADERSHIP AND MANAGEMENT I, II, III

Five units. Analysis of selected leadership and management problems involved in unit administration, military justice, and the Army Readiness Program. Position of the United States in the contemporary world scene discussed in the light of its impact on leadership and management problems of the military services. Study of military operations and various military teams to include military geography. Practical experience in organizing, planning, and conducting training programs for subordinates. The course covers three quarters and grants one, two, and two units of credit, respectively (two class hours and one leadership laboratory per week during the first two quarters and one class hour and one leadership laboratory period during the third quarter). A grade is awarded at the end of each quarter. Final grade consists of an average of the grades for the three quarters. Prerequisite: Military Science 133.

Elective Courses

10. AMERICAN MILITARY HISTORY

Four units. A study of the development of American military institutions, policies, experience, and traditions in peace and war from colonial times to the present. Emphasis is on the relationship between the military and other

aspects of American society and the role of the military in the establishment, expansion, preservation, and development of the nation. This course fulfills an elective requirement of the Military Science Department. Requirement may be satisfied by a similar course with the prior approval of the Professor of Military Science.

98. SPECIAL STUDIES IN INTERNATIONAL RELATIONS

Four units. Study of contemporary world issues and their impact on the world political scene. Emphasis is placed upon the use of guest lecturers, case studies, and simulation techniques. Course is team taught by the political science and military science departments. This course fulfills an elective requirement of the Military Science Department which may be satisfied by an appropriate international relations course with the prior approval of the Professor of Military Science.

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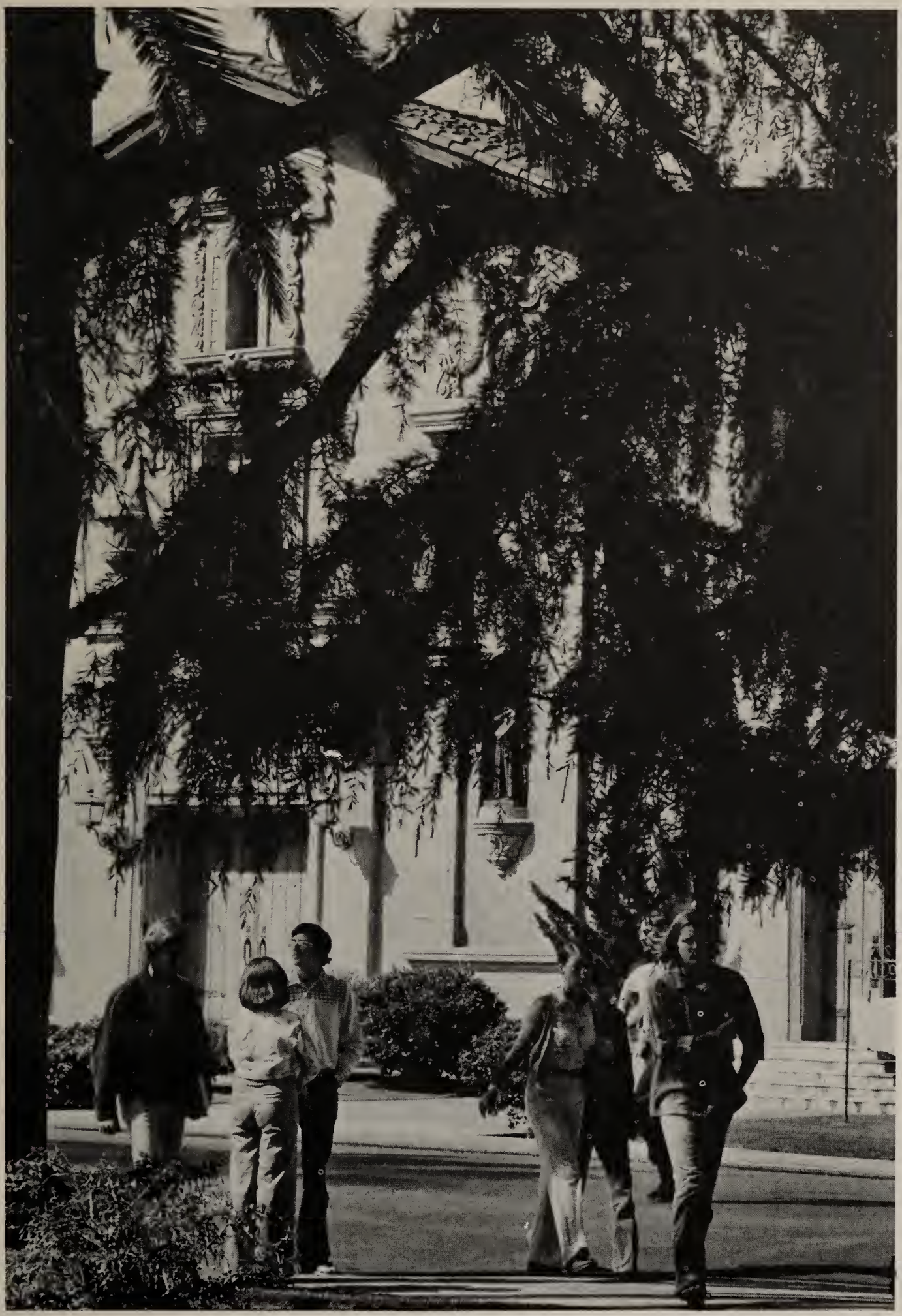

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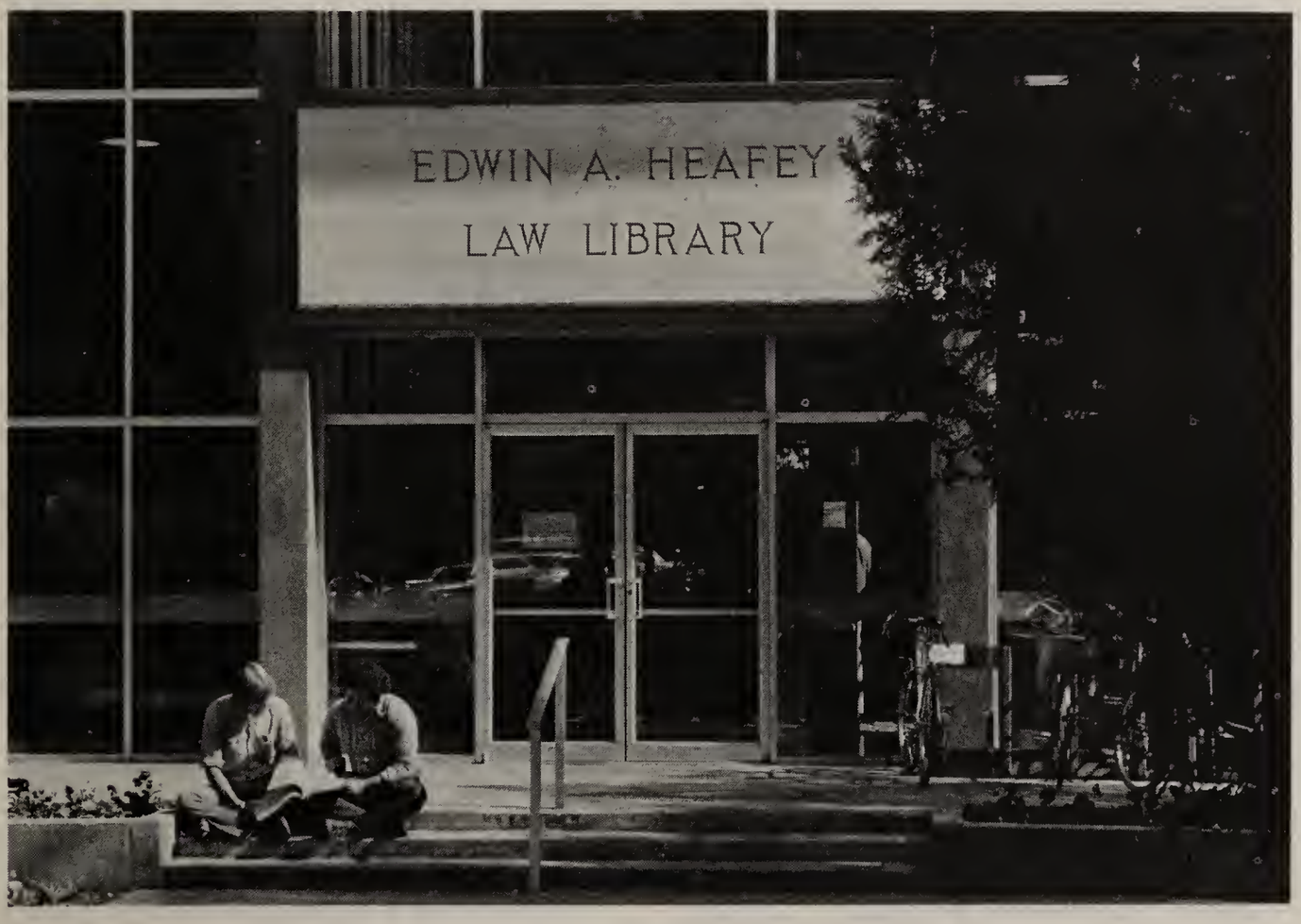

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